

Platinum Jubilee Year Celebrations



CSIR-Indian Institute of Chemical Technology
Hyderabad



75 YEARS

PLATINUM JUBILEE CELEBRATIONS

1944-2018

Souvenir

CSIR-Indian Institute of Chemical Technology
Hyderabad

فرمان

بملاحظہ: عرضداشت صیفہ صنعت و حرفت، معروضہ ۱۹ محرم الحرام ۱۳۵۸ھ جو جامعہ عثمانیہ کے قریب کے انڈسٹریل ایریا میں انڈسٹریل لیبارٹری (Industrial Laboratory) کے لئے ایک جدید عمارت تعمیر کرنے کی نسبت ہے۔
حکم: کونسل کی رائے کے مطابق تعمیر مذکور کیلئے گنجائش محولہ سے لے کر منظور کئے جائیں۔
۱ صفر المظفر ۱۳۵۸ھ

ROYAL ORDER

Application from the Department of Industries dated 19- Moharram 1358 Hgra (11th March 1939 AD) about the construction of new building for the industrial laboratory in the industrial area near the Osmania University.

Order: In accordance with recommendation of the Council of Ministers Rs 90,025/- (Rupees ninty thousand twenty five) may be granted.

Signature of H.E.H.
The Nizam

(MIR OSMAN ALI KHAN)

Dated 8-Safar 1358 Hgra
(30 March 1938)

ENVIRONMENTAL
ENGINEERING
AND FOSSIL FUELS

PROCESS
ENGINEERING &
TECHNOLOGY
TRANSFER

ORGANIC
SYNTHESIS &
PROCESS
CHEMISTRY

APPLIED
BIOLOGY

FLUORO &
AGRO
CHEMICALS

ANALYTICAL
CHEMISTRY
SUPPORT

CATALYSIS
& FINE
CHEMICALS

LIPID
SCIENCE
& TECHNOLOGY

POLYMERS &
FUNCTIONAL
MATERIALS

NATURAL
PRODUCTS &
TRADITIONAL
KNOWLEDGE

CSIR-INDIAN INSTITUTE OF CHEMICAL TECHNOLOGY

**A SOUVENIR RELEASED
ON THE OCCASION OF
THE INAUGURATION OF
THE YEAR LONG
PLATINUM JUBILEE CELEBRATIONS**

PLATINUM JUBILEE



CSIR - IICT

Touching Lives





सी.एस.आई.आर - भारतीय रासायनिक प्रौद्योगिकी संस्थान
CSIR - Indian Institute of Chemical Technology

(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)

(Council of Scientific & Industrial Research)

(विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार / Ministry of Science & Technology, Govt. of India)

तारनाका Tarnaka, हैदराबाद Hyderabad - 500 007, T.S, भारत India



डॉ. एस. चंद्रशेखर एफएनएससी, एफएएससी, एफएनए
निदेशक

Dr. S. Chandrasekhar, FNASc, FASc, FNA
Director

FOREWORD



It has been a proud and privileged moment for me to be part of the Platinum Jubilee Celebrations of CSIR-IICT as Director of this great Institute. The journey of this laboratory, in the service of the nation, began in 1944 as CLSIR, then RRL and currently CSIR-IICT. In this long and prudent journey, the Institute has aligned to all the national missions and demands. The pharma and pesticide revolutions were spearheaded by this organization when the citizens of this country needed affordable health care and accessible industrial and agricultural solutions. The institute always understood the national needs and fulfilled the responsibilities with highest degree of compassion.

The staff and students of CSIR-IICT take this occasion to salute the visionaries who have contributed to this organization and also reassure the stake holders regarding their commitment towards the fulfillment of the dreams of the nation with renewed vigour on this milestone year.

I heartily welcome all the dignitaries and guests to be part of this important milestone event.

Warm regards

(S. Chandrasekhar)

23 July 2018



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MESSAGES



सत्यमेव जयते

भारत के उपराष्ट्रपति
VICE-PRESIDENT OF INDIA

MESSAGE



I congratulate, the Director, Staff and Students of CSIR-IICT, on the occasion of the Institute entering its Platinum Jubilee Year. The curtain raising function on this occasion should ignite the year long celebrations of Science and Technology innovations. This is definitely a proud moment not only to the staff of the Institute but also to all the stake holders.

The core strength of CSIR-IICT lies in organic chemistry and it continues to excel in this field for over seven decades. The research efforts during these years have resulted in the development of several innovative processes for a variety of products necessary for human welfare such as drugs, agrochemicals, food, organic intermediates, adhesives etc. Today CSIR-IICT is widely acknowledged as technology partner and solution provider to the industry in Pharma & generics, agrochemicals & green pesticides, food & nutrition, energy & environment, polymers & functional materials, industrial catalysts & fine chemical sectors. Therefore it is very apt for the Institute to organize International Conference titled "Sustainable Chemistry for Health, Environment and Materials" (SuCHEM-2018) during 6th to 8th August to commemorate the onset of Platinum Jubilee year.

I have visited CSIR-IICT on quite a few occasions in the past and I still cherish the interactions that I had with the scientific fraternity. I strongly believe that the Institute will take a leadership role in the coming years in taking the Indian Chemical Industries to greater heights. I wish the organization a great future.


(M. Venkaiah Naidu)

New Delhi
16th July, 2018.



E.S.L. Narasimhan



सत्यमेव जयते

**GOVERNOR
ANDHRA PRADESH AND TELANGANA**

**RAJ BHAVAN
HYDERABAD-500 041**

July 20, 2018

MESSAGE



I am happy to learn that CSIR-Indian Institute of Chemical Technology, Hyderabad is celebrating its 75th Foundation Day on 5th August, 2018. My best wishes to the Director, staff and students of CSIR-IICT on this historic occasion

CSIR-IICT during its seventy five year journey has made its mark as a dynamic, innovative and result oriented R&D organization. It's clientele spans all corners of the globe. The CSIR-Indian Institute of Chemical Technology (CSIR-IICT) is one of the oldest National Laboratories the reliable destination of chemical and biotech industries. The reputation that CSIR-IICT could establish amongst the industrial clients as a reliable R&D partner, can be largely attributed to its rich pool of scientists with expertise in broad ranging research areas and simple and effective business development strategies. The CSIR-IICT has immensely contributed to various technologies in the fields of pharmaceuticals, agro-chemicals, polymers, lipid research etc. It is a proud moment for the entire country and the industries and institutions associated either directly or indirectly.

I wish the year-long celebrations of 75th Anniversary of CSIR-CSIR-Indian Institute of Chemical Technology, all success.

E.S.L. Narasimhan
2017/18

E.S.L. Narasimhan



डॉ. हर्ष वर्धन
DR. HARSH VARDHAN



मंत्री
विज्ञान और प्रौद्योगिकी एवं पृथ्वी विज्ञान ;
पर्यावरण, वन और जलवायु परिवर्तन
भारत सरकार
नई दिल्ली - 110001
MINISTER
SCIENCE & TECHNOLOGY AND EARTH SCIENCES ;
ENVIRONMENT, FOREST AND CLIMATE CHANGE
GOVERNMENT OF INDIA
NEW DELHI - 110001

MESSAGE



CSIR-IICT is entering into 75 years of glorious journey with its immense contribution in Chemistry and Chemical Technologies.

I congratulate the Director and all Scientists, staff and research students on this occasion of Platinum Jubilee celebration. I would urge you all to rededicate yourself for National development through technological intervention.

I am also happy to note that CSIR-IICT is hosting International Conference on Sustainable Chemistry for Health, Environment & Materials (SuCHEM-2018) with global experts as part of the celebration.

I wish all the best for future endeavours of IICT.


(Dr. Harsh Vardhan)

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KADIYAM SRIHARI
M.Sc.
DEPUTY CHIEF MINISTER
& Minister for Education



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'D' Block, Telangana Secretariat
Hyderabad.
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040-23459922

Date : _____

MESSAGE



I am happy to know that the CSIR-Indian Institute of Chemical Technology is crossing its prestigious landmark of 74 years of R&D services in the areas of Chemistry and Chemical Technologies and going to celebrate its Platinum Jubilee Celebrations.

I am confident that the presentations by eminent researchers and discussions among delegates from across the globe during the international conference "Sustainable Chemistry for Health, Environment and Materials" (SuCHEM-2018) will focus and provide solutions to issues related to health care, energy and environment.

It is a matter of immense pleasure to congratulate Dr. S. Chandrasekhar, Director and the staff of the Institute on this auspicious occasion and my best wishes for the success of year long Platinum Jubilee celebrations of the Institute.

K. Srihari
(KADIYAM SRIHARI)





सत्यमेव जयते

गिरीश साहनी

सचिव, भारत सरकार
वैज्ञानिक और औद्योगिक अनुसंधान विभाग, तथा
महानिदेशक

Girish Sahni

Secretary, Govt. of India
Department of Scientific & Industrial Research, and
Director General



वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद्

अनुसंधान भवन, 2, रफी मार्ग, नई दिल्ली-110001

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

Anusandhan Bhawan, 2, Rafi Marg, New Delhi-110001

MESSAGE



I am happy to know that CSIR-Indian Institute of Chemical Technology (CSIR-IICT), Hyderabad is entering 75th year of its glorious presence and celebrating its yearlong Platinum Jubilee starting from 5th August, 2018.

CSIR-IICT, one of the oldest national laboratories under the CSIR, has been contributing during its 74 years' journey and has emerged as a reliable destination for chemical and pharma industries. The laboratory efforts in the development of technologies for pesticides, drugs, fine chemicals, catalysts, polymers and value added products from vegetable oils are noteworthy. CSIR-IICT indigenous development of technology for AZT (Zidovudine), the first FDA approved drug used in the treatment of HIV/AIDS infections, is a milestone contribution in national healthcare mission.

I congratulate the Team, IICT on this occasion when CSIR-IICT is celebrating Year-long Platinum Jubilee events with focus on innovation for national development, science popularization, technological exposition and outreach programmes targeting student community and public in general.

I convey my best wishes to TEAM CSIR-IICT for a promising future in the services of the Nation.


[Girish Sahni]

July 18, 2018
New Delhi



REFLECTIONS

REFLECTIONS

1. Dr. G. Thyagarajan 1981–1985
2. Dr. B.R. Sant 1965–1992
3. Dr. A. V. Rama Rao 1984–1995
4. Dr. (Mrs.) Kaiser Jamil 1971–2000
5. Dr. N. Krishnamurti 1965–2000
6. Dr. K.V.R.S. Murthy 1965–2000
7. Dr. M. Pardhasaradhi 1964–2002
8. Dr. G.S.R. Sastry 1974–2004
& Dr. P.N. Sharma 1976–2010
9. Dr. Vijaya Kale 1977–2010
10. Dr. J.S. Yadav 1986–2011
11. Dr. A.C. Kunwar 1986-2011
12. Shri K. Rajeshwar Rao 1979-2012
13. Dr. D. Krishna 1983-2013
14. Dr. P.S. Sai Prasad 1974–2015
15. Dr. (Ms). M. Lakshmi Kantam 1984–2015
16. Dr. R.B.N. Prasad 1980-2015
17. Dr. M. Subramanyam 1986-2017
18. Dr. V. J. Rao 1988-2017
19. Dr. U.S.N. Murthy 1984-2017
20. Dr. B. Mahipal Reddy 1984-2017
21. Dr. G.V.M. Sharma 1987-2018
22. Dr. K. Ravi Kumar 1990-2018
23. Dr. B. Narsaiah 1983-2018

Dr. G. THYAGARAJAN

CSIR-IICT Service: 1956-1974 Researcher / R&D Leader

1981-1985 Director RRL

MY MEMORIES OF CLSIR & RRL

It was an evening in early January, 1956. I was watching and admiring the vast premises of Central Laboratories for Scientific and Industrial Research taking shape on Uppal road. I was then in M.Sc. final year in nearby Osmania University in Chemistry Department. I began contemplating my next steps after M.Sc. A firm hand tapped me and I turned. It was Professor Hussain Zaheer, Director of CLSIR which would soon change to Regional Research Laboratory. I had met him only once earlier when he came to Osmania University Chemistry Department to deliver a lecture on "The Fuel Problem". He remembered me as I was Secretary of the Colloquium. He asked what I was planning to do after M.Sc. I frankly said, I wanted to work in the RRL if I fared well. He smiled and wished me luck.

When I achieved 'first-in-first in M.Sc. I was overjoyed and was preparing to meet the Director RRL but he anticipated me and sent for me. He offered to take me in his laboratory as a research apprentice at 150 rupees per month. I was thrilled, within three months he upgraded me to CSIR Research Fellow with 250 rupees as fellowship, and placed in the Chemistry Division headed by Dr. G. S. Sidhu.

It was a glorious beginning for me in many ways. I had the opportunity to observe the extraordinary personality of Dr. Zaheer: magnetic charm, energetic, ability to spot talent and cultivate friends. He involved me in many tasks relating to institution building, research management and external relations

As it expanded infrastructurally, financially, operationally, intellectually and in popularity, nationally and beyond, RRL was recognized for

- Being the first in the CSIR system to define 'Transfer of Technology' and create the infrastructure to offer research and development services
- Being the first in CSIR to offer turnkey projects including pilot plants and design and engineering contracts. For eg., "Process package for Diazepam, active pharmaceutical ingredient of Calmpose, in collaboration with MM Suri Associates, fully sponsored by Ranbaxy Laboratories".
- First in the CSIR to welcome a computer (IBM 1620) to facilitate process simulation, optimization and control studies.
- Pioneering research and industry conferences.
- Multi-disciplinary programs.
- Multi Laboratory consultancy to ONGC involving 5 CSIR labs, TNO of Netherlands, and Snamprogetti, Italy, a true internationalization of the CSIR.
- Rushing to Bhopal to assist Dr. S. Varadarajan in successfully managing the crisis after the Bhopal gas tragedy (led by this writer and Dr. A. A. Khan)
- Quickly responding to the call of then Chief Minister of Andhra Pradesh Shri N. T. Rama Rao to urgently conduct survey on safety in all the Chemical process industries in the Andhra Pradesh State (This writer led the team along with Dr. P.S. Murti, Dr. U.T. Bhalerao, Mr. Y.S. Murti and more).
- First in the country to set up, with help from TNO of the Netherlands, Hazard and Risk analysis, research and applications. CLRI and NCL followed.



It is relevant to remember Dr. Zaheer; “Science is a Philosophy which never rests and which is never perfect. Its law is progress. The point which yesterday was invisible is its goal today and will be its starting point tomorrow”

My association with this great institution and its founding directors equipped me with the talents, skills and attitudes to shoulder institutional leaderships. Such that in December 1974 at just 40, I was moved to Jorhat, Assam by then DG, CSIR, Dr. Y. Nayudamma to lead the RRL (now NEIST). When the task was successfully completed in six years I was given the opportunity to return to RRL Hyderabad, the Institute where I cut my Research Management teeth.

IICT has consistently enjoyed worldwide reputation adding kudos after kudos. Successive directors Dr. A. V. Rama Rao, Dr. K. V. Raghavan, Dr. J. S. Yadav and Dr. M. Lakshmi Kantham have famously added their contributions. It is now led by another eminent scientist Dr. Srivari Chandrasekhar who I have no doubt, will take IICT to still greater heights.

I am happy to have been a part in the growth story of this iconic, unique institution.
All the best to IICT in its march to its Centenary.

DR. B. R. SANT

CSIR-IICT Service 1965 - 1992

MY CHEMICAL BOND WITH RRL-HYDERABAD (NOW IICT)

It was a bright, sunny day in January 1965. I walked into the RRL campus, asking for Director's office. I had an appointment with Dr. S. Hussain Zaheer, then DGSIR on a visit to Hyderabad, Dr. G.S.Sidhu had taken over as Director of RRL. I had hardly to wait for a few minutes. I was ushered in the Conference Room. I had earlier neither seen Dr. Zaheer nor Dr. Sidhu. There must have been some 30-40 people of RRL informally gathered there in that conference room. After the formal introduction and pleasantries, I took out my one-page CV and gave to Dr. Zaheer. He took hardly a couple of minutes and said almost spontaneously, "Dr. Sant, go and join our new RRL-Bhubaneswar and organise a Division of Minerals. They need a person like you." The words are fresh in my mind even today.

I was then a Management staff at ICI(I)(P) Ltd., Calcutta/Rishra Works. I have been working there for almost 3 years, drawing a good salary and perks. There was only one problem - I was "missing" research and the best I could think was CSIR. On return to Calcutta, I contacted the (Founder) Director Mr. G. S. Choudhury (earlier of RRL-Hyderabad). He asked me to meet him at Howrah station, Platform No. 14, from where Howrah-Puri Express starts in the evening. Was it an "Interview"? I wondered! Perhaps it was. Apparently he was impressed with my credentials and invited me to Bhubaneswar. Rest is history. The RRL was at that time just a State Government-donated vast 500 acres of 'forest' land, next to Utkal University campus on National Highway No.7. Mr. Biju Patnaik, the 'architect' of RRL, was the Chief Minister of Orissa, He was the first Chairman of its Executive Council. It was a great moment of joy for me. I could now utilise my experiences at USA, Canada, BHU and ICI(I) to develop a school of mineral technology. Needless to say that the Mineral Division was well-organised. The 'mineral seed' then planted has grown into a full-fledged Institute of Minerals and Materials Technology (IMMT) I do feel proud and I pay my humble tributes to the visionary Dr. Hussain Zaheer.

My yearning to settle in Hyderabad became a reality in 1983, when I was asked to take over CSIR- Polytechnology Transfer Centre under the administrative control of RRL-Hyderabad (now IICT). I had the great opportunity to work under the guidance of 2 outstanding Directors of RRL-Hyderabad - Dr. G. Tyagarajan and Dr. A. V. Rama Rao. Both of them gave me full freedom and support to perform my duties in the interest and image-building of IICT, CSIR Laboratories, and CSIR headquarters. I had the fullest cooperation of IICT's administration. I superannuated on 31st July 1992, and leading thereafter a fairly active life till the writing of this story.



DR. A. V. RAMARAO

CSIR-IICT : 1984 - 1995

**REMINISCENCES OF THE LAST DIRECTOR OF RRL,
HYDERABAD AND THE FIRST DIRECTOR OF IICT
- A V RAMARAO**

The Indian Institute of Chemical Technology (IICT) will be completing 74 years of its existence and to mark its Platinum Jubilee, there will be celebrations throughout the year starting from 5th August 2018. IICT has come a long way through its scientific achievements and most importantly by extensively training and creating a vast pool of scientific talent to cater to both academic and industrial needs. I would like to congratulate the past and present members of the Institute on this special occasion and wish the staff of IICT the very best in their future endeavors.

My selection as Director, RRL-H was mainly due to Prof. M. M. Sharma's initiation by asking me to appear before the search committee and his belief that I would be the right candidate for an Institute that had a mandate to contribute towards the development of technologies. Apparently, the then DG CSIR, Dr. S. Varadarajan, preferred Prof. S. Ranganathan of IIT, Kanpur for the post. The selection committee decided to keep both the names on equal footing leaving the final decision to DG CSIR. Although the DG sent his recommendation favoring Prof. S. Ranganathan for the directorship, the then Minister of Science and Technology, Shri Shivaraj Patil selected my application and got it endorsed by the President of CSIR and Prime Minister of India, Shri Rajiv Gandhi.

I left NCL on Friday 12th July 1985 to take up the post of Director RRL with effect from Monday 15th July 1985. Within a very short time it became clear to me that RRL did not share the same scientific culture that I was used to at NCL. So my immediate focus was to restructure the organization and provide clear achievable goals whilst also inducting fresh talent. I interacted with every individual scientist in every department trying to understand the bearing and relevance of their work. The bright spot in the Institute was the group working on agro chemicals. Dr. Bhalerao, Head of the Organic Chemistry division, Dr. Asad Ali Khan, Head of Chemical Engineering and Mr. Parlekar, Head of Design Group had worked as a team and completed more than four projects on organophosphorus pesticides and transferred the technology to M/s. Sudarshan Chemicals, Pune and NOCIL Industries, Mumbai. I strengthened this group further and also added for the first time computer aided engineering design so that we could offer detailed designs that could be implemented by the industry. Subsequently, they developed Butachlor and Chlorpyrifos and the later one was licensed to 13 pesticide manufacturers.

Among the organic chemists, I found Dr. Ganesh Pandey had the spark and potential, so I encouraged him to carry out independent research. He did well, going on to win the Bhatnagar Prize and moved to NCL as Head of the Organic Chemistry division. The Catalytic Division was also full of talented young people, among them was Dr. B. M. Choudhary and Dr. M. Lakshmikantham. They published several papers in prestigious international journals. B. M. Choudhary subsequently got the Bhatnagar Prize and Lakshmikantham took over as Director of IICT.

I was very keen to strengthen the Organic Chemistry Division and attracted some of my own colleagues from NCL like Dr. J. S. Yadav (later became Director of IICT), Dr. M. K. Gurjar (Moved to NCL as head of the Organic Chemistry Division) and Dr. M. N. Deshmukh. Along with this team, I also shifted my research group consisting of 20 CSIR research fellows from NCL to IICT. The entire group became part of the Director's Research Division. As there was no space available, the group first occupied

the stores that was attached to the canteen and converted one of the pilot plant buildings as an organic chemistry laboratory. I also inducted Dr. T. K. Chakraborti, Dr. A. K. Singh and Dr. G. V. M. Sharma into my group and they proved to be great assets to the organization. Dr. Chakraborti obtained the Bhatnagar Prize and went on to become the Director of CDRI. I also utilized the sponsored money from pharmaceutical industries which I collected within the first year of my joining RRL-H towards building the Bio-Organic Chemistry laboratory. Unfortunately, this was a serious lapse on my part in utilizing the sponsored money in constructing a lab which did not find place in the RRL-H balance sheet. The central audit committee took a serious objection and communicated to CSIR to rectify the situation. DG CSIR was furious and called me to Delhi to discuss this matter. Finally, both DG and Joint Secretary from CSIR created the term "External Cash Flow", whatever the amount comes from outside CSIR should be kept under the head and can be utilized by Director as per the CSIR guidelines.

I created a larger NMR facility and brought Dr. A. C. Kunwar to head the division. Subsequently the X-Ray group was strengthened and inducted Dr. K. Ravi Kumar from IISc., Bangalore. I also strengthened the existing Mass Spectrometry group and the regular Analytical Division, headed by Dr. Sajid Hussain. The work culture of the Institute totally changed with the research groups working late into the night with the zeal to compete Internationally.

The Coal Division of RRL was working for several years on gasification of Indian coals and with aid from UNDP, the project was completed in 5 years. Unfortunately, these results were not put to use in building a demonstration power plant either by the Government of India or BHEL. Dr. Nori Krishnamurthy from the Organic Coatings Division agreed to follow my advice to work on Adhesives and came out with several technologies and all of them were transferred to small scale industries. By the time I left, he had transferred probably 50 of these technologies and all of them have gone into commercial production.

Two major projects were initiated during my tenure; 1] Manufacture of Cyanuric chloride, sponsored by M/s. Atic Labs, Bulsar (Rs. 50 lakhs). It involves continuous process of producing 5 kg/hr and was successfully transferred to Atic Labs. The second was HFC 134a (sponsored by 3CFC manufacturers paying Rs.1 crore each. It is the only substitute for CFCs (ozone depleting substances) that go into the refrigeration industry. The organic chemistry group led by Dr. J. Madhusudhan Rao established the fluorination lab and along with the catalyst group headed by Dr. Kanta Rao, completed bench scale experiments before I retired as Director, IICT. SRF is now producing HFC 134a based on IICT technology.

In 1986, the president of CSIR, Mr. Rajiv Gandhi appointed Abid Hussain committee with Prof. M. M. Sharma and others as members to look into the various aspects of CSIR's working and suggest ways and means to improve the work culture to meet the Nation's needs.

The committee first visited RRL-H and during my interaction with the members and Mr. Abid Hussain, I suggested the name of the laboratory should be re-designated as IICT. As there is nothing like region in doing science and technology, I felt the name IICT was more suitable, as our emphasis would be on science and develop technologies that are relevant to industry. The name had come into effect on 12th July, 1989 and Mr. K. R. Narayanan, the then Minister of Science and Technology, GoI, was the Chief Guest for the renaming of the Institute.

I was not exposed to any administrative work when I was heading the Organic Chemistry division at NCL. When I joined RRL as Director, I felt the need to run the lab by taking quick and right decisions to suit the Institutional interests rather than following bureaucratic procedures. On several occasions the COA and Finance Head did not like my way of working but in spite of that I imposed on them and used to place orders for better instruments and building additional blocks without any budget proposal. By



some way or the other, I used to impress on DG CSIR, Prof. S. K. Joshi and the planning cell and used to get additional grants to meet our requirements. Sir John Madox, FRS former editor "Nature" wrote; "The most improved laboratory in India must be the Indian Institute of Chemical Technology (IICT) at Hyderabad. Ten years ago, as the Hyderabad Regional Research Laboratory, it was one of the worst. The difference is not so much the change of name, but the arrival as Director Dr. A. V. Rama Rao, a vigorous no-nonsense organic chemist of distinction"- Nature, December 16th, 1993.

As an organic chemist, personally I am pleased with my achievements and contributions to the area of organic synthesis. I established in India -a school of excellence for the synthesis of complex molecules such as anti-tumor antibiotics (Anthracyclines, Fredricamycin, etc.), immunosuppressants, cyclic peptides including Vancomycin, etc. More than 100 CSIR research fellows were trained and obtained their Ph.D. degrees. Several of them went on to occupy very senior positions in academic and pharmaceutical organisations. In addition, many of them have become successful entrepreneurs. Incidentally, Dr. S Chandrasekhar, the present Director of IICT was my first research fellow after I joined RRL-H.I was probably the first Indian scientist to take a lead in nurturing and fostering integration in basic science, technology development and engineering design to provide a complete package for commercial exploitations. I pioneered the concept of Institution and Industry interaction with several leading Indian pharmaceutical industries such as Cipla, Lupin, Cadila, Dr. Reddy's, FDC, etc. Our research group went on to develop alternative affordable technologies for several essential generic drugs including anti-HIV drugs which enabled the Indian Pharmaceutical Industry to introduce them in the market at a fraction (1/5 to 1/10) of the prevailing international prices.

It gave me immense joy and satisfaction when my colleagues received several honours and awards during my tenure as Director. For example, the CSIR Young Scientist Awards initiated in 1987 was given every year to an IICT scientist till I retired except for one year. We also received year after year the Technology Award and the first Business Development Award was given to IICT (Cash award of Rs.1 lakh shared with Mr. Krishna Reddy).

On 1st April 1995, IICT celebrated its Golden Jubilee celebrations with Sri P. V. Narasimha Rao, the then Prime Minister of India as the Chief Guest and Sri N. T. Rama Rao, the then Chief Minister of Andhra Pradesh was the honoured guest. The model of the new building "Discovery Lab" was inaugurated by Shri P V Narasimha Rao in the presence of His Excellency Shri Krishna Kant. We also conducted an International Symposium in Organic Synthesis which also coincided with my 60th Birthday (2nd April 1995).

I would like to express my gratitude to several people who were responsible for my growth. Among them - my teachers (Dr. K. Venkataraman, former Director NCL and Prof. E. J. Corey, Nobel Laureate, Harvard University), all my students and colleagues, Prof. M. M. Sharma, Prof. S. K. Joshi, Prof. C. N. R. Rao, Dr. S. Varadarajan and Dr. Y. K. Hamied along with many others who helped me in my career.

DR. KAISER JAMIL

CSIR-IICT Service: 1971 - 2000

A JOURNEY DOWN THE MEMORY LANE:

Memories are like story books: they record our experiences and the lessons we have learnt from them. When we have quiet moments, we stumble upon them and catch up with them like a motion picture. They come and go, not quite in a sequence, but haphazardly upon introspection. My memories of my time at IICT is a story book I enjoy revisiting.

Leaving my bachpan [childhood] behind, as a student of M. Sc. at Osmania University, I started visiting a great Institute, the Regional Research Laboratory (RRL) library, with my friend Shobha, the niece of Dr. E. R. Saxena. Dr. Saxena was the head of the Inorganic Chemistry Division of RRL. He gave us permission to use the library facilities for our studies. After that first entry to RRL there was no looking back. Immediately after M. Sc. I joined R R Labs as a Research Fellow in the Entomology Division under Dr. M. B. Naidu as my Ph. D. guide, After Ph. D. I joined the Biochemistry division headed by Dr. P .M. Bhargava, which subsequently branched off as an independent Institute – the Centre for Cellular and Molecular Biology (CCMB). There I continued to learn molecular biology under the mentorship of Dr. P.M. Bhargava. One unforgettable memory that comes to my mind is the time we met with the stalwarts of modern biology - Dr. Watson and Dr. Francis Crick, the Nobel Prize winners for the discovery of the double helix structure of DNA who were invited by Dr. Bhargava at CCMB and we were privileged to listen to them at a two-day conference. Many more such opportunities arose as I continued my journey in science--we had several Nobel laureates visiting us for international conferences and on various other occasions. The real scientific spirit was ignited by interacting with the international and national scientists visiting CCMB at RRL premises and discussing their work at our coffee club in room 240 at 11.00 am every day.

While enjoying my thrill on being a CCMB scientist, one day I walked into the IICT premises to be interviewed at RRL for the post of Senior Scientist, and, to my surprise and delight, I was selected. Despite my mentor Dr. P. M. Bhargava's reluctance to see me go, I took up the challenging job at RRL. I was to contribute biological insights to some international projects from CSC (Commonwealth Science Council-UK) and TNO – Netherlands. The Director of RRL, Dr. G. Thyagarajan, was the coordinator for those projects, and he was immensely happy with my contributions. We published several papers and prepared reports together. It was my privilege to work with two highly reputed directors, Dr. G. Thyagarajan and Dr. Vijaya Raghavan. Those were the most memorable days of my research career. Not only research, I had wonderful opportunities to organize several cultural events as a cultural Secretary of RRL - Club. Organizing cultural events made me very popular in the RRL community and gave me the chance to make new friends from other departments. Cultural events included participants from all colony members and their families. All the children of the colony came forward for all the events conducted. No one can imagine that Mrs. Bhargava, Mrs. Thyagarajan, Mrs. Saxena, Mrs. Harinarayan, Mrs. Harigopal, Mrs. Venkob Rao and others whose names I have not mentioned, had all participated actively in stage events like dances and dramas with me being the proud Secretary of RRL - Club.

With the appointment of Dr. A. V. Rama Rao as the new Director of RRL; RRL was re-christened as Indian Institute of Chemical Technology (IICT) with great pomp and show. The focus on research shifted to securing more patents and publications.

So, all scientists had to gear up for the new challenges, and my biology division was expanded to include Regulatory Toxicology, we already had GLP standards, and we revised our SOPs for ISO recognition and were handling several Industry related projects.



I cannot forget the challenge which I accepted and continued for 18 years as Head of Biology, Toxicology and Biotechnology Division. We had geared up for both basic research and applied research - interacting with Industry for contractual projects. I remember, Dr. Raghavan as Director of IICT giving our Biology and Toxicology group a special Award on IICT foundation Day for our earnings from Industry and contractual research.

Before I proceed I must mention that I met my husband, Dr. Zafar Jamil, at RRL. He was a wonderful person, he used to walk me home, and we fell in love. The library was a common place for us to meet and to meet people from other departments, as I was in the Biology Department and my husband was in the catalysis division. Our sciences were complementary as were our ideas. My parents also took a liking to Dr. Zafar Jamil and quickly got us married. Both of us spent 30 years of life in the IICT campus, sadly leaving the campus life after my superannuation.

The memories of our life spent together, and the campus life will always remain fresh in our life. RRL romances were not limited to just us there were others whose romances bloomed - Naseem and Shantha, Sajid and Suraiya, Shanta and Sudershan to name a few - but every couple was as dedicated to their profession as to their partners. It was our opportunity as couples to give our best to the Institute as we received the best partners from the Institute. Memories are not merely a choice, when we choose to relive them; they are an integral part of us.

CSIR-IICT is a great Institute and has progressed from being a Regional Research Lab to an internationally-recognized Indian Institute of Chemical Technology - the transition was from its very first Director, the visionary Dr. Hussain Zaheer, who handed over the reins of IICT to Dr. G. S. Sidhu. After several years of directorship, Dr. Sidhu proceeded to take charge as Director General of the Council of Scientific and Industrial Research (CSIR). In my lifetime, I have been closely associated with at least 6 Directors: Dr. G. S. Sidhu, Dr. G. Thyagarajan, Dr. Vijay Raghavan, Dr. A. V. Rama Rao, my former CCMB director Dr. P. M. Bhargava, and not to forget my junior colleague who became Director - Dr. J. S. Yadav who took charge of the TNO projects and some of my staff members to provide the biology inputs to the project.

I also recall my joining the Organization of Women in Science in the Developing World (OWSD) with its headquarters in Trieste- Italy as a member and later was elected as its President, the aim and objectives of OWSD are to encourage women's education, develop scientific temper and encourage women to fight for gender equality. I am happy to say that my Organization - IICT encouraged me and fully supported my activities for motivating women Scientists.

On the Academic side, I had the opportunity to represent IICT at many international conferences such as IUPAC conference in Ottawa, UNESCO Conference in Paris, Bellagio Conference in Italy.

My career at IICT demonstrates how women can succeed when given equal chance to do so. It gave me the opportunity to interact with international community of people and scientists, so my reputation as an accomplished scientist grew. I was awarded Emeritus Scientist by CSIR and I am still receiving several laurels and several awards till today.

All I can say is that a scientist cannot retire, and I am still going forward with the full support of my late husband who left me last year, to carry on my journey of life - till we meet again in our permanent heavenly abode. Walking down memory lane can bring up many things we have forgotten and put us in touch with the past. But by reliving those memories and moving past them, we can walk into the future with new hope and new confidence.

Thank you Director-IICT for asking me to share my memories of time spent at IICT. Wishing you the Best in all your endeavours to take CSIR-IICT to greater heights!

DR. N. KRISHNAMURTI

CSIR-IICT Service: 1965-2000

When I got a job in RRL-H in April 1965, by the grace of God, I considered very lucky as it was a government job and that too in state of Andhra Pradesh to which I belong initially. Very soon, I have realized that I am in Paradise to pursue my interest in Research.

I was offered one post lower than the post (Scientist B) for which I had applied. Initially I sent a rejection letter, to the Director, as I was not happy at it. Then I received a very affectionate, and hand written letter from Dr. K T Achaya, who was a deputy director of RRL at that time, requesting me, to accept the offer and said that I could submit the work carried out, for my Ph/D degree of Bombay university. That is the love and affection I have received from him and then the Director Dr G S Sidhu received me on the very first day of my joining with a broad smile. This has prompted me to accept my offer of RRL and joined the Institute.

Though I was qualified in Oils and fats field (My M.Tech degree in oils and fats technology), I was asked to join in paints division by Dr. Achaya, as he has considered me an intelligent scientist coming from UDCT with top rank. Paints division was at that time was a newly formed division carved out of oils division and the first head was Dr. J. S. Aggarwal, who was a very tough task master.

Though we used to sign in the attendance register as soon as we arrived in the office, Dr Aggarwal used to keep a blank paper where again we have to write our name and also record the exact time of arrival. This system was never followed in any other division.

Dr Aggarwal used to make four rounds daily, to watch the progress of our research work, at 10am, 12.30pm; 2.30pm and 5.00pm. We have to show him some progress, at every step. It was a very tough task for us. This was a daily affair. So to satisfy him most of the colleagues used to work up to 8pm in the night.

Those days I was staying at Prederghast road behind Paradise talkies in Secunderabad. There used to be only one bus (Route no 18) from Secunderabad station at 9am and in return at 6pm from Habshiguda. So, daily we used to miss the bus at 6pm as we work up to 8pm daily. I used to walk daily to my home, via diary farm, seethaphalmandi, secunderabad station, Monda market, RP road and finally Paradise circle.

The working atmosphere was excellent. No boss culture. Full freedom to work. No criticism. It was really a paradise to work.

I was placed to work in a Project PL 480, funded by US department of agriculture on "Preparation of acrylic and methacrylic monomers from Castor oil". The toughest job was to prepare 50g of monomer in purest form (99+%), and send it to USDA for their further evaluation. I used to purify the monomers only by column chromatography, as the monomers could not be distilled even under high vacuum due to their higher molecular weight say 280+ and also due to their extremely polymerizable nature. So every three months I have to pack 50g monomer and send to USDA. If the monomer was less than 99% pure as found by those US scientists, I have to prepare again, a fresh sample and resend. So, there was no scope to bluff and get out of it, and coupled with Dr Aggarwal's tough attitude, our life was with full of tensions. This work later, I submitted for my Ph.D degree of Bombay University in 1971. However I became extremely good in synthetic chemistry and also applications of NMR and MS techniques to establish the purity of the monomers synthesized by me.

During that time in 1966 I got married. But no honey moon and no enjoyment of newly married life due to the pressure of work at the Institute. I had received tremendous support from Dr Achaya and Dr Sidhu. Actually they have supported me with love, and also, all those Scientists who used to work with diligence and intelligence.

I got an offer as Senior Chemist (Scientist C) at Bank Note Press Dewas under ministry of finance, in December 1972, to establish a manufacturing unit to produce 1MT printing



Ink, in a shift of 8 hours; suitable for printing currency notes of denominations Rs2,5,10,20,50, and 100. Dr Sidhu was very generous to send me there without resigning from my position, on foreign service terms, for a period of 4 years. Due to this facility, I got all the benefits of service and promotions too, without being in RRL. Dr. Sidhu was a very generous director and most popular too. His period as director was from 1964 to 1981. I have successfully completed my task in 4 years, and I got “Out standing” rating for all the 4 years of my stay there in my confidential reports. I have rejoined in RRL in September 1976.

I have shifted to quarters in 1967. Those days we used to have regular club evenings once in every two weeks. All the family members used to mingle with every one, no matter what the official designation was. Mrs Bharat bhushan was always called as universal Bhabhiji. Shri Bharat bhushan was a very great scientist in charge of PCL division, with whom we used to discuss our technology and got immense valuable feedbacks from him. I have been benefitted through him, in technological matters on number of occasions.

Our club used to screen regularly Telugu and Hindi cinemas in our auditorium on every Tuesday at Rs 1 per head as ticket. All the people who were residing in colony were immensely benefitted by this facility. During my stay in RRL-IICT we celebrated Rama Navami for more than 25 years. Later when Dr Rama rao joined as Director during 1985, under his leadership we celebrated Ganesh Chaturthi every year in our community center for more than 15 years. We were very active members in all club activities without any compromise to the quality of our research work..I was cultural secretary for one year. During that period, I have arranged several concerts and dance recitals by very reputed artists.

The best Directors according to me, during my whole career of 35 years in RRL-IICT were Dr G.S. Sidhu and Dr A.V. Rama Rao. I have learnt lot from these two directors. Dr Sidhu taught me excellent manners, which I can never forget in my life..Dr Rama Rao taught to me, the hard and sincere work culture. He said that there is nothing better than sincere, devotion and honest hard working in research, which can take you to higher heights in the profession. He has lead the Institute from the front, to great heights during his 10 years period as director. It was he, who has changed the name of RRL to IICT during 1987. It was a very great achievement. During his period as director, IICT has got every year Young scientist and technology awards, and also few Bhatnagar awards too, and has brought IICT to the rank number one amongst all the 40 institutions under CSIR umbrella.

I have received tremendous support from Dr Rama Rao, when I started working on “Adhesives” in 1985.. Because of his love and affection and valuable support I could develop more than 70 adhesives products of commercial importance and transferred these technologies to 70 Industries all over the country. All the 70 industries are still manufacturing those products even now. Many products which were developed during those days are still in the market and no substitutes were found yet in the market. These industries have generated an employment to more than 500 persons..In this process I have earned nearly Rs 20 Lakhs, as know how fees, to IICT. During Dr Rama Rao’s time we have never starved for funds and the chemicals. Dr. Rama Rao’s concept was “If you work you will prosper and if you don’t work you will perish”. He has only two classes of people-“Working class and non working class”

I have equally received tremendous support from Shri T Krishna Reddy, who was heading the PCL division for more than 15 years. He has elephant memory coupled with humor. He has an extraordinary ways of attracting industrialists. Any industrialist goes to his room, will not come out with out signing a MOU. I have enjoyed thoroughly his support during 1985 to 2000. I share my success with him too, apart from Dr Ramarao. Dr Sidhu has also very great respect for Shri Krishna Reddy. He has told me the same, several times. I did a project for Dr Sidhu during 1993 to 95 for Badrukas firm “Rock wool mineral products”. At that time Dr Sidhu was 74 years old and was very active. During

those two years we became close friends and he used to share so many personal matters. My work on “Adhesives” has brought name and fame to IICT. IICT was recognized as an important Institute, as it has gained lot of confidence from small and tiny scale industries. I am very happy to mention here that in the years 1992 and 1998, I have transferred as many as 11 technologies to the industries each year. Practically there used to be stream of industrial representatives visiting our division.

Dr Rama Rao encouraged me to give UGC Doordarshan programs to popularize the polymer based industrially useful products. Thus I gave 4 Parts programs on each of “The world of adhesives”, “The world of Printing Inks”, “The methods of polymerization” etc. I also gave two live programs from Door darshan New Delhi on the “Break Through” and one program for UGC. No other scientist has ever given so many programs on Television from CSIR, other than me.

I have received tremendous satisfaction, when I have developed “Surgical Adhesives” for sutureless surgery, Cosmetic surgeries, surgeries in orthodontics, heart by pass, eyes, orthopedic, Gastro enterology etc. These technologies were transferred to at least 4 firms including “Ethicon”-a subsidiary unit of Johnson and Jonson at Aurangabad. I have received many letters of appreciation from large number of surgeons all over our country. This has brought an excellent name to IICT.

My contributions to IICT even after my retirement (period from 2000 to till now-18 years) I retired on superannuation on 31st August 2000. I have never felt that I am retired. As soon as I retired I had two firms waiting to take me as their consultant. Later, even very big firms like “Pidilite” has grabbed me as their consultant. I have completed 17 years at Pidilite as on date. The turn over of Pidilite is more than Rs 8000crores. That is a great achievement. Because of my successful stint at Pidilite, this firm has sponsored three projects to IICT and paid nearly Rs 55 lakhs. These projects are Hydroxy ethyl cellulose, Conversion of acrylamide to acrylic acid thru biotechnology route and one on paints recently. This is how, even after my retirement I could benefit IICT. After my retirement, our division transferred the knowhows of the products, like octyl cyanoacrylates, neoprene based contact adhesive, rat trap adhesive etc; developed by me when I was in service. There by IICT has earned another Rs 35 lakhs.

Not only this, RCI-DRDO has paid Rs 20 lakhs to IICT during 2005, for me to use the facilities at IICT, when I was asked to develop various high tech adhesives for Agni, Aakash, Trishul and BrahMos missiles, by the then Director General of DRDO, DR V K Saraswat. Earlier they were working on these products for 15 years from 1990 to 2005, without any success. No country was willing to give the technology, however they were friendly with India. Till today I developed successfully as many as 18 “Adhesives” for these missiles. Out of these 10 adhesives are now being manufactured commercially by Pidilite and supplying to RCI-DRDO on regular basis since 2011. This has brought a very good name to myself and IICT too. In a recent lecture by Dr. V. K. Saraswat on 5th August 2017, at IICT, he has mentioned this success story to our scientists. I too have received congratulatory letters from him. Also he has rated my work as “Out Standing” inspite of several odds, on 22nd August through email. Now Dr. Saraswat is a member of Niti Aayog in New Delhi. I have also received a certificate of appreciation from our prime minister Shri Narendra Modi, in the year 2015, for developing an adhesive for Fiber Optic Gyro used to navigate an unmanned fighter aircraft. All these achievements have gone to IICT indirectly. I sincerely hope that the readers of this article will agree with me, and understand, my contribution of high reputation to IICT.

Not only these achievements, I have developed several adhesives for another 70 firms after my retirement, not for money but on humanitarian grounds. Most of these first generation technocrats are now become full fledged Industrialists and can speak on emulsion polymerization techniques as good as any scientist in CSIR. This is a contribution under “Make in India” scheme of our Prime Minister



LAST WORD

All my successes, are not only due the God's kind mercy on me, but also due to the blessings of several great personalities, listed below: I am greatly indebted to them for ever till my last breath..In addition ;my family, consisting of my wife, my all the three children and my sons in law Dr G Narahari sastry (presently working at IICT as Chief Scientist), and Shri G Krishna kishor (presently as deputy general manager with 3M at Bangalore), have encouraged me with infinite love, support, and looked after my wellbeing, so meticulously.I am always happy at home due to my all the 4 grand sons, who have made me very proud grand father by their academic performance and manners.

Prof. D.Rebello	My Professor and Mentor	1960-65
Dr J. S. Aggarwal	My Research Guide	1965-71
Mrs N.Lalitha	My dearest Wife and Mentor	1966-cont'd
Dr G .S. Siddhu (Padma Shri)	My Director and Mentor	1965-2000
Dr K. T. Achaya	My Mentor	1965-72
Shri R.Ramaswamy	My Mentor;OSD BNP Dewas	1973-76
Dr A. V. Rama Rao (Padma Bhushan)	My Director and Mentor for ever	1985-2018
Mrs Shakti Balasubramanian	Made me Popular thru UGC	1991-2000
Shri Rattan Toorky	Helped me to become popular thru UGC programmes	1991-2000
Dr K.V.Raghavan	My Director and well wisher	1996-2000
Dr V.K.Saraswat	SA to Defence minister and my mentor too	2005-2018

DR. K. V. R. S. MURTHY

CSIR-IICT Service: 1979 - 2006

MY BEAUTIFUL JOURNEY AND MY REMEMBRANCES WITH THE GREAT WORLD CLASS INSTITUTE

I was young and energetic with a vision to serve the cause of Science and striving for a good placement. I happened to see an advertisement in Hindu paper August 1978 calling Scientist posts in the Regional Research Laboratory, Hyderabad and one of the post is well suited to my experience and immediately. I submitted my application, one fine fortune day I got the interview letter and a committee consisting of Expert scientists interviewed for half an hour and Dr. G. S. Sidhu was the Director.

I have received an appointment letter as SCIENTIST-C with advanced increments and there was no limit to my excitement. I reported to Dr. (ing) R. Vaitheeswaran, the Head of the Coal Division and in turn I was asked to report to Shri T. S. R. Anjaneyulu, Head Engineering Division and I joined on 23rd October 1979. In those days, I think it was customary to be introduced to the colleague to all the divisional heads and members in the respective divisions. My post was to erect and commission the coal Gasification pilot plant, after commissioning the supporting auxiliary plants like the Air separation Plant, Steam generation Plant and Coal Handling plants. The plant is 6 KM away from RRL campus and about 100 staff members were to reporting at the plant. The drinking water in 50 lit can was to be transported everyday to the site. Canteen used to provide milk sachets and one person was allotted for this work. The commissioning of the CGP plant was big task as the plant was purchased during 1969-70 from Lurgi, Germany and some plant crates were not opened as the project was stopped. Again in 1978, the project work was ordered by Government and the erection and commissioning restarted. The Air separation Plant was one critical situation for the commissioning.

The oxygen is to be separated to feed into the Coal Gasification. Linde Germany Engineers also could not provide the required service to commission this Unit. Dr Vaideeswaran could identify a similar plant in Travancore Fertilizer Plant and spoke to the CMD of the plant to assist. Dr. Vaideeswaran arranged a visit to their plant and I was air dashed to Travancore and a special Hospitality and technical help was provided by them. During a weeks observation of the plant operations and circuits examination, I had the privilege to commission the RRL oxygen Plant where the high pressure and High speed Turbine with 32000 RPM finally could be achieved with -194 degrees Air liquid.

All the project team and Director were happy for this achievement and since then all other erection works of all the plants were commissioned. About 120 staff scientists, Technical officers and Technicians worked together and the plant was successfully commissioned. CSIR- CFRI, Dhanbad scientists also helped for the commissioning of the plant. Those were the days that 130 people working round the clock for the operations continuously for two months stretch duties for testing the Indian Coals. Based on the importance of the Coal Gasification Technology for the liquid fuels conversions and combined power generation process technologies. UNDP has sanctioned one Million US dollars Most of the project scientists, including me visited the Germany, Czechoslovakia, Poland, and USA Plants. The latest modern instrumentation, computer controls, online data collections, and process variabilities have been tested for most of the Indian coals for the gasification characters including High ash coals Low as Lignite. The Project scientists were chemical engineers were Shri. K. Seshagiri Rao, Shri. S. Narayana Reddy, Shri. B. Madhusudhan, Shri. T. Krishnu, MD. Khalil Akmal and Mechanical and electrical engineers worked as a team. The project later was supported by Department of Coal through CMPDI Ranchi, and collaborative works with Bharat Heavy Electrical R&D for testing the coals. Govt. of India has appointed a committee with CSIR, BHEL and NTPC to select a process technology for coal gasification based on combined power generation plants including some of the technologies developed by The US, The UK and Germany. CSIR IICT was the nodal agency. Most of he work has been



completed during the periods of Dr. G. Thyagarajan and Dr. A. V. Rama Rao as Directors. The CGP Operations were curtailed during 1998 - 1990. The 10 kg per Hour Cogeneration plant erection and commissioning has been taken up with Lupin Laboratories collaboration and Cyanuric Chloride pilot plants have been established at the Moulai Premises. BHEL R&D has established the Fluidised bed Gasification taking the services of IICT. After successful operations of the coal projects, I was directed to takeover the Engineering Services of the Institute. IICT has excellent facilities in establishment of Laboratory Utility facilities, Laboratory Fume Hoods, workshop, Vehicle maintenance. Maintenance of Air conditioning systems, Carpentry, Steam generation and supply Electrical maintenance of Laboratory and the Staff quarters, water Management, Glass apparatus systems, Dr. A. V. Rama Rao, has created and established New Laboratories for Natural Projects Catalysis Discovery Block, where the then Prime Minister Hon Shri P.V. Narasimha Rao ji inaugurated. In association with the civil engineering and respective scientists in each of the facilities, we could provide the necessary infrastructure to their satisfaction. Many such laboratories and sophisticated testing equipments like NMR, Mass spectrometry labs, Crystallography labs etc were also established and the engineering division could support for the commissioning the respective units. Dr. K. V. Raghavan's time one of the prestigious Process Technology Unit on HFC 134a was established and the pilot plant was a gigantic structure. Piping, equipments and were erected and commissioned at the Moulali, CGP area. Engineering support was provided and Shri S. Narayana Reddy the Project Coordinator and the process technology trail runs were successfully done.

The other Group members in the engineering division are Shri M. R. K Murthy, Electrical Incharge, Shri M. S Subrahmanyam, Shri K. Ravindranath, Dr. Seshu Kumar, Shri. J.V. Prasad as Mechanical Engineers. The Engineering Division staff were about 200, which includes, Technical officers, Technicians, Group I & II. Dr. Raghavan initiated the process of ISO 9000-2000 certification in the analytical divisions and in the Engineering Division coordinator in this work. IICT obtained ISO certification and TUV presented the certificate to Director Dr. K.V. Raghavan in the presence of Dr. R. A. Mashelkar, DG, CSIR and Professor P. M. Bhargava, Former Director, CCMB.

Dr. K.V. Raghavan has taken up another project from world bank Loan for infrastructure development in the Plot plants and Hydrogenation plant where the engineering support was provided by the division. Dr. Raghavan, has also taken the refurbishing of the Main Laboratory building. The main buildings that were giving problems of leakage because of the age and all the floors need to be rebuilt and a major civil engineering work grant has been provided by CSIR. The Engineering Division has taken up all the infrastructure, utility services, laboratory designs, procurement and erection and commissioning in all the floors. This took a considerable time to make the laboratories, providing alternative workplaces during the refurbishment period and finally the completion of the works and occupation of scientists in the new modern look laboratories during Dr. J. S. Yadav as Director in 2005-06. Presently it has a wonderful look, better than International laboratory styles. To keep the power supply at all time many measures were taken to increase the Electrical Power inputs from 11KV to 133 KV lines, adding captive Diesel Power generation sets. Renovation of the Main Auditorium with new air conditioning system also has been established.

Thus, I had the opportunity to serve RRL-H and Later IICT in various capacities from Scientist C to Scientist F and Superannuated with full Satisfaction, in October 2006. Not only me, my family two daughters and a son studied in the Zaheer memorial IICT Campus School and settled in USA in their respective good positions. With family and grand children and thus my journey in RRL-H IICT is full success. On this occasion of 75th Year Platinum Jubilee of this wonderful Institute, I wish the Institute to continue to render world class science in the service of Humanity and pursuit of excellence at large and move forward for the centenary celebrations with a vision of producing Nobel Laureates from CSIR-IICT.

DR. M. PARDHASARADHI

CSIR-IICT Service: 1964 – 2002

YA THO BUDHISTHATO MANAHA

Three and half decades of association (1964-2002) with IICT (RRL-H) has prompted me to share my experiences and impressions on the occasion of its Platinum Jubilee Celebrations.

RRL Hyderabad was Instituted with a regional bias and focus by CSIR New Delhi in the post-independence era. It was to promote and support chemical industries based on the locally available raw materials and agroproduces, coal and minerals. Detoxification of Cotton seed oil and meal; Surface coating from Cashewnut shell liquid; value added Castor Seed Products; LTC of Coal (Smokeless Fuel and Chemicals); Coal Gasification; Coconut Shell based Active Carbon; and Silicon Carbide were the major projects of focus initiated at RRL. Basic research, PhD programs, and paper publications were encouraged to train younger scientists to take up industrial projects. Processes for the preparation of Hydrazene-hydrate, Benzyl chemicals, Sodium Azide, and Glyoxal were released to the Industry.

In early 1970s, RRL-H started R&D projects in the area of generic pesticides to compete with the multinational pesticide production processes in India. RRL-H rightly did so and exhibited its capability and relevance to the nation. Several pesticide manufacturing industries were established in the region and also in other parts of the country. In an Agriculture intensive country such as India, pesticide industries played a strong and positive role in food production. The initial objective of RRL-H had, thus been, achieved to a reasonable extent.

Later, RRL-H has changed its name to IICT with large expansion of laboratories, and scientific staff. Frontier areas of research were initiated to develop High Technologies for industrialization at national level. Synthesis of drugs to control AIDS and Cancer, Frontier area of Catalysis and Fine Chemical Synthesis, Development of drug material from natural products, Synthesis of chemical messengers to control insect behaviour in agricultural fields, were some of the major initiatives. The focus was shifted from local aspirations to national and international level of science and technology. Publication of research papers in international journals has increased to a great extent with surge in Impact Factor of IICT. Citations, titles and awards started honouring the Institute. It is a commendable achievement of RRL-H after it changed its name to IICT. However, the technology projects like Hydrofluorocarbons (HFCs) to take care of ozone layer and Industrial chemicals using carbonmonoxide feed-stock would have had a national industrial impact if continued with larger support.

“The Activity gets concentrated There, Where One’s Inner determined objective Pervades” (YA THO BUDHISTHATO MANAH:)

Personally, I felt satisfied when my teams demonstrated processes for the preparation of UDMH the rocket propellant to DRDO, Hyderabad; Phenylacetic acid using Catalytic Carbonylation to RCF, Mumbai; Doxazocin, Losartan-K and Amyl-m-cresol drugs to the sponsors from Gujarat. However, the process for preparation of Vitamin-A acetate and Pentazocin could not be completed to the demonstration level due to various constraints.

On the occasion of the Platinum Celebrations, I wish CSIR-IICT to continue to deliver High Technologies to accelerate industrial growth and exhibit its capability and increasing relevance to the nation. With Platinum Jubilee Celebrations the Institute (CSIR-IICT) is mature both with Scientific knowledge and experience.



DR. G. S. R. SASTRY

CSIR-IICT Service: 1974 - 2004

DR. P. N. SHARMA

CSIR-IICT Service: 1976 - 2010

Analytical Chemistry Division was established as a separate Division in 1972 with late Dr. M. R. Subbram as its Head. Earlier this section was a part of Organic Division, since the inception of RRL, Hyderabad in 1944.

Initially the section was engaged in the classical method of analysis of Organic and Inorganic samples like ores, minerals, metals, alloys, oils, fats, drugs, pesticides etc. In 1972, some analytical instruments like GLC, UV-Vis, IR and NMR Spectrometers were added. In 1975 Mr. Y. V. Subba Rao became the Head of the Division and its scope of activities has expanded.

In 1979 Dr. Sajid Hussain became the Head of the Division and continued till his retirement in 1999. The division was strengthened with the addition of more analytical instruments like HPLC, NMR, Elemental analyzer etc with more man power to cater the R&D needs of the Institute and support to Chemical Industries.

The Division has contributed to the exchequer of RRL-H/IICT by providing quality assessment and quality assurance of consumer, Industrial, Agrochemicals, Fuels, Drugs to various Central and State Government agencies, industries, consumers etc. It has also undertaken consultancy services to the above agencies in the following areas;

Chemical equivalence of agrochemicals | Drug Master files
Transformer oils and Prediction of failures of transformers
Specialty coatings for Nuclear Power projects across the Country and Petroleum Refineries | Oil seed mission projects
Environmental Monitoring of Industries on behalf of Pollution Control Boards
Adulteration of oils, alcoholic beverages, Petroleum Products
Quality assessment of indelible ink

Some of the Major consumers benefitted by the services of the division are:

Nuclear Power corporation of India | BHEL
Petroleum Refineries | Central Bureau of Investigation
Directorate of Revenue Intelligence | Finance Ministry, GoI.

Various State Government Departments like excise, electricity, irrigation, transport etc. Atomic Minerals Division, NFC, DMRL, DRDL etc ONGC Major Agrochemicals and Drug Industries across the country, were our clients.

The Division supported various in-house and sponsored projects of the Institute, notable among them area:

Agrochemicals | Drugs and drug intermediates | CFC substitutes
Bio fuels | Fluoro compounds | Synthetic aviation lubricants.

The Division with other Infrastructural departments like Workshop, Stores and Purchase was recognized for ISO-9000 by certifying agencies. It has participated in inter laboratory studies for certified reference materials and 20 CRM's have been released.

DR. VIJAY KALE

CSIR-IICT Service: 1977 - 2010

SERVICE IN CSIR-IICT (FORMERLY RRL HYDERABAD)

I joined CSIR- IICT on 4th April 1977 as Senior Scientific Assistant (SSA) and after working for 33 years, retired as Director Grade Scientist (Chief Scientist) on 30th October 2010. At the time of my appointment management thought of creating subject matter expert engineers instead of generalist core engineers to accelerate commercialization. As I had done work on sulfonated castor oil prior to joining IICT, I was assigned to the Oils and Fats Div. in Dr. Ranga Subbarao's group which was working on castor oil derivatives. From the beginning I strongly believed in developing any chemical process from "Concept to Commercialization" which is the motto of CSIR. Our group developed technologies for many castor oil derivatives such as DCO fatty acids, Dimer acids, Reactive and non reactive Polyamides all starting from castor oil. Due to the whole hearted support from all the colleagues and due to my interest in developing projects from concept to commercialization, I could successfully develop new or improved technologies for different projects and successfully commission commercial plants. For all the following projects we obtained ECF from either government agencies or from private companies. Here are a few examples.

In 1990 when Dr. Ranga Subbarao became the Head after the retirement of Dr. G Lakshminarayana, our group got a UNIDO funded product for continuous preparation of Undecenoic acid (UDA) 1 Kg/Hr from castor oil and we were to demonstrate the process to Chinese scientist from DRIPE (Design Institute for Petroleum Engineering) China. I learnt that they had over 600 scientists working on castor oil derivatives in their Institute and that they had to work in the industry for 6 months in a year and to do research for the next 6 months in the Institute. I used to think that our research Institutes also should have some such system so that our scientist would get a feel of the Industrial work.

M/s Surana Oils and Derivatives Industry Ltd wanted to set up 50 tons per day (TPD) plant to prepare 30 TPD Hydrogenated castor oil (HCO), 15 TPD 12-hydroxy stearic acid (12 HSA) and 5 TPD castor methyl esters (CME) from 50 TPD of 1st special grade i.e. BSS grade castor oil. We successfully demonstrated the above processes on 20 Kg Batch scale in IICT. They also wanted the basic and detailed design report for their commercial plant. I had studied Plant design while doing M.Tech. So, I myself with the help of Dr. B. Vishwanatham from our Div. did the basic design for all the Equipments. Mechanical design was done by Sri Anandam and his team from the Mechanical Engineering Div. under the guidance of their Div. Head Sri R. N. Paralikar. Under my guidance our commissioning team demonstrated 6 ton batch HCO and 5 ton batch of 12HSA. The products from the first commissioning trial had all the properties required for export and both the products were directly exported. We completed the Plant commissioning working continuously for three days 24/7 at the plant site in Shamshabad. This was a big achievement for me and my team.

In 1997, we demonstrated our technology for continuous preparation of Undecenoic acid from Castor oil which was developed for the first time in India by our group. to M/s GOCL (Gujarat Oleo Chemicals Ltd) Gujarat on 2 TPD of UDA. We received a National Award for the development of this Technology from Dr. Murli Manohar Joshi, the then Science and Technology Minister.

In 1998, I was deputed to University of Illinois at Urban Champaign in USA for one month to get hands on training in Application of Membrane technology to remove free fatty acids (FFA) from crude Rice Bran Oil under the guidance of Prof. Cheryan. I completed that work in 20 days using flat sheet membranes in the membrane cells and the work was published in AOCs Journal. When I came back we got a collaborative project with the Glass & Ceramic Research Institute (CCGCRI) Kolkata funded by TMOP & M (Technology



Mission on Oil seeds, Pulses and Maize) Delhi to develop the technology for removing the free fatty acids from rice bran oil on pilot plant scale using membrane technology. Dr. S. Bandyopadhyay and his team from CGCRI were to prepare the ceramic membranes and we at IICT were to test them. We were successful in removing 95% of the FFA from crude rice bran oil.

In 2002, we got a project from Dept. of Bio Technology (DBT) Delhi to develop a Technology for continuous preparation of 1 TPD Biodiesel from non edible oils such as Jatropha oil. We developed a novel indigenous technology for producing (1 TPD) Biodiesel from Jatropha oil. This plant was built on a small 20'x10' space and can be used by the commercial operations for optimization of process, raw material. In 2008 I was deputed as a visiting Scientist to Saskatchewan University in Saskatoon, Canada for 3 months. There I helped to design - build a batch pilot plant to prepare biodiesel from canola oil.

Lab to commercial scaleup of novel technology - Enzymatic degumming of Rice bran oil
After retirement of Dr. T. N. B. Kaimal in 2001, I became the Head of the Oils section. Dr. R. B. N. Prasad and his team in our Div. had previously developed a process for Enzymatic degumming of crude rice bran oil on kg scale in the laboratory and could reduce the phospholipids content below 5 ppm which facilitates the removal of the fatty acids (FFA) in the crude rice bran oil using high vacuum distillation i.e. by Physical refining in which case the refined rice bran oil retains about 1% Oryzanol. Oryzanol is the antioxidant only found in rice bran oil and which can lower the LDL and increase the HDL in human blood which is required to prevent Heart attack. As we had no equipment available for carrying out further work on pilot plant scale, we approached the owner Mr. Lakshmikanth of M/S. Ramcharan oil industries who was producing refined rice bran oil on 10 tons per batch in a 50 TPD commercial plant using chemical refining method. I requested him to allow us to use our Enzymatic degumming technology in 10 tons per batch plant and he readily agreed. Here also in the first batch of 10 tons crude rice bran oil we could reduce the phosphorus level to below 5 ppm as obtained the laboratory scale of kg. Dr. R. B. N. Prasad and I told about our success to TMOP&M of Govt. of India. Hence to promote our Technology TMOP&M announced a subsidy of Rs. 75 lakhs to each rice bran oil industry who chooses to use our enzymatic degumming technology. The subsidy was given to the rice bran oil industry for purchasing the equipment for enzymatic degumming and dewaxing of crude rice bran oil. IICT got Rs 4 lakh from TMOP&M for each demonstration of the technology. I was involved in demonstrating the technology to three more industries, one each is in Punjab, Chhattisgarh and Kolkata. The technology was further successfully demonstrated by our colleagues in 21 more rice bran oil refining industries throughout India.

With the pursuance of Our Head Dr. T. N. B. Kaimal and the then Director Late Dr. K. V. Raghavan and the help rendered by Dr. R. A. Maheshkar who was CSIR DG and Sri Atre who was Chief of DRDO we got the Project for development of technology for Synthetic Aviation Lubricants from CHT (Centre for High Technology) of the Petroleum Ministry with an outlay of Rs 17.3 crores. The development of this technology is strategic in nature for Defense preparedness of our country. We had formed a consortium involving IOC R&D, NAL, HAL, GTRE AND CEMILAC with IICT as the nodal agency. I was made the coordinator for the project. IICT was entrusted with the task of preparing the base oil which constitutes more than 95% of the final lubricant and IOC R&D prepared the final lubricants by adding some ingredients. IICT successfully developed the technology in the laboratory first at 1 kg scale then at 5 kg on bench scale and finally at 100 kg on pilot plant scale. We developed two lubricants SVS11 and SVS21 which were tested successfully on ground in aero engines at HAL and at NAVAIR USA.

DR. J. S. YADAV

CSIR-IICT Service: 1981-2012

REMINISCENCES DURING MY TENURE AT IICT HYDERABAD

I have fond and vivid memories when I first entered (1986) this great cosmopolitan city of Hyderabad and the Institute, erstwhile called Regional Research Laboratory (RRL-H) known for its epitome of wisdom, scientific temper and versatile culture. The gigantic main building glorified with its warmth and excellent hospitality, has taken me in its huge hug and made me feel at home as the years passed. At that time, my inner zeal very righteously and enthusiastically patted me in ensuing, Yadav this is your Mecca of your scientific career. Truly, as the years passed, the Institute and I complimented each other with all outstanding growth both at National and International Scientific Arena. Eventually with the blessings of the Institute, I became the Director of CSIR-IICT, Hyderabad in the year 2003 and successfully led till 2012. Although, Institute has remarkably performed in the area of pesticides/ insecticides and releasing technologies up to late 1980s, I observed that the strength in academic research was not that great and was in need of strong and solid directions. Having inherent zeal to establish better fundamental science and develop human resources, I utilized the opportunity and started working on fundamental research specially on natural products, modern methods in synthetic organic chemistry, designing and structuring of various organic molecules with diversified biological activities, while, concentrating on the development of human resources. Being a strong believer that science has great beauty and with its great spiritual strength will in turn cleanses the world of its evils, poverty, ignorance, diseases and wars, I only aimed to strongly establish and enrich scientific temper and knowledge at the Institute. In turn, my belief has come true and Institute has gained tremendous name and recognition for its human resources and fundamental research both at National and International levels. Considering the importance of interdisciplinary scientific knowledge and its abundant potential in the discovery of new applications, I utilized the leadership of the Institute and brought in highly advanced areas of research by bringing the needed expertise together to pursue the research for better scientific endeavours for the overall benefit of the society. In turn, Institute has gained a pioneering status for eco-friendly and environmentally safe pheromone application technology (PAT) as an alternative to pesticides for pest management strategy for the first time in country as a agro-tool for the farming community.

All the other areas are also well supported with second to none infrastructure funding and enormous opportunities for both National and International collaborations to blossom. They include chemical genomics for drug development, national facility for combinatorial natural products, center for lipid sciences, Public Private Partnership programs, high recognition as an organization for prohibition of chemical weapons (OPCW), biotechnology incubator center, synthetic aviation lubricants, Indo-French laboratory, Indo-Australian RMIT laboratory, Molbank to name a few. While the Institute has provided me with great opportunities, the traditional culture and the support, I received from ever encouraging sincere staff had given me the needed strength to build up the stature of this great Institute. I am highly delighted and satisfied that I could contribute a little to raise the image of the Institute and glory. I sincerely feel and believe that I could serve this great Institute because of the unstinted support I received from all cadre staff and the faith and belief bestowed on my efforts for which I am ever grateful to them. I am proud to be the part of this every green Institute and feel happy a feather of its beaming cap.

My family joins me in expressing their sincere gratitude to this remarkable Institute and we whole heartedly indebted to this ever green organization which had always felt us at home, although we hail from a little village called Azamgarh of Uttar Pradesh.

Let us all step out and make the World better with Science.



DR. A. C. KUNWAR

CSIR-IICT Service:1986 - 2011

It is wonderful to be associated with an institution that is stepping into its seventy fifth year. The eventful past of the institution is something all of us, IICTians, are proud of. My association with Regional Research Laboratory (RRL), Hyderabad (the name it was given, in 1956, when it came into the folds of CSIR) started in 1986, when I moved from Raman Research Institute (RRI), Bangalore. Around that time I had spent 16 out of 18 years of my scientific carrier in Institutes, which were mainly involved in research in Physics. First at (Tata Institute of Fundamental Research, Bombay (TIFR) (5 years), followed by Raman Research Institute Bangalore (RRI) (13 years). During my stay at RRI, I spent one year at the Institute fur Physik, University of Basel and 2 years at Department of Chemistry, University of Illinois, Urbana-Champaign, USA on study leave. Thus, I was a little circumspect as to how I will adjust to such a change in my working environment. Though the stay and experience at Urbana Champaign was rather useful for me to make the transition rather smoothly.

1986 was just the second year of the move of Dr. A. V. Rama Rao as Director, to RRL-H from National Chemical Laboratory (NCL), Pune. He was clear, focused and aggressive in his goal to change the Institute to a vibrant and performing laboratory, which he did with great passion and zest. I was among his first few appointees, which included among others, Dr. J. S. Yadav, Dr. M. K. Gurjar, Dr. T. K. Chakraborty, (Late) Dr. A. K. Singh and Dr. G. V. M. Sharma (all Organic Chemists). However, as an NMR spectroscopist, I had a unique status. Incidentally, Dr. Rama Rao, having started his scientific carrier as a natural product chemist, wrote his first research paper on NMR. Thus he was very clear in his mind about the role of NMR personnel, in achieving his desired goals. The day I arrived, I was asked to join DRL III (Director's Research Lab, III). He told me that I will have free access any time to him and his office. RRL-H had couple of low field NMR spectrometers with electromagnets. However, acquisition of a 300 MHz NMR spectrometer had been processed jointly by RRL/Centre of Cellular and Molecular Biology (CCMB). After about one year of my joining, it was installed in the new and elegant premises of CCMB. Prof. D. Balasubramanian was in-charge of the instrument and I was assigned the responsibility for its day to day running. In the mean time the NMR group also started growing with Dr. R. Ramachandran, Dr. S. Narasimha Reddy, (Late) Dr. T. Prabhakar Rao, Dr. R. Luke Babu and Dr. T. V. Raju joining the team.

In 1989, the Institute was rechristened as Indian Institute of Chemical Technology (IICT) as per the recommendations of Abid Hussain committee to reflect the strengths, the expertise and excellence developed by it. With so many active and young scientists joining the Institute, the research activity was gaining momentum thereby attracting large number of students to work for their Ph. D. degree. It became apparent that for the kind of problems being tackled in the Institute, we needed our own high field NMR spectrometers. Dr. Rama Rao was generous enough to provide a princely grant of almost 1 crore rupees in 1989 for acquiring a 200 MHz and a 400 MHz superconducting NMR spectrometers. It so turned out that these instruments, especially the lower field spectrometer (Gemini 200), became the work horse and provided wonderful service to all the scientists and students in the Institute for the next decade. In fact, several research Institutes and industries also benefited with the use of our facility and the expertise available with the group. In the mean time, Mr. Sharad Siradkar, Mr. L. K. Rao, Dr. L. Satyanarayana, Dr. K.V. S. Ramakrishana and Mr. P. Ramulu also joined the team to support and participate in the efficient running of the facility.

It is indeed one thing to acquire the spectrometers, but altogether different ball game to run them efficiently. Maintaining superconducting magnets, in the absence of the availability of the cryogenic fluids in the Institute was very demanding. We had to top the magnets with liquid Nitrogen every week, whereas liquid Helium needed to be filled every 80 days or earlier. Liquid nitrogen was available from CCMB but there was no

source of liquid Helium in Hyderabad. Liquid Helium with a temperature of 4.2K, is highly perishable and had to be transported in very sophisticated dewars with extremely high vacuum. Thus, we had to acquire it from various commercial sources from Tarapur, Gaziabad and Sarjah. In case of non availability from the commercial sources, we have also obtained it from Indian Institute Technology, Madras, National Physical Laboratory, New Delhi and India Institute of Science, Bangalore. We had to also visit the railway stations and the airport to collect the consignment (if it did not come by road), to get its quick delivery. All in all, till we filled the liquid in our magnets it was a tense situation and it would be a great relief to have kept the magnets in working condition. In subsequent years, around 2000, Bharat Heavy Electrical Limited R&D, Hyderabad acquired a liquid helium plant and they were kind enough to help us in case there was a need. Even getting liquid Nitrogen other sources, when CCMB liquefier gave problems, required very serious efforts.

In Dr. Raghavan's tenure as Director (1996-2003), two more NMR spectrometers (a 500 MHz and a 300 MHz) were acquired to meet the rising demand of the larger student community. Induction of Dr. B. Jagadeesh in 1998, considerably facilitated the running of the facility, which was depleted by the departure of Dr. R. Ramachandran and Dr. S. Narasimha Reddy for greener pastures to Germany and Australia respectively. This was the period, when our group also initiated very important collaborations in the area of peptidomimetics with (Late) Mrs. D. Ranganathan, Dr. T. K. Chakraborty, Dr. G. V. M. Sharma and Dr. S. Chandrasekhar. The efforts were worthwhile and some very noteworthy scientific work emanated from these collaborative efforts from the group. The structural studies in collaboration with Dr. Chakraborty, on peptides containing sugar amino acids, enabled us to understand and find firm footings in the field of peptidomimetics. The engagement of the group with Dr. Sharma, Dr. Chandrasekhar and (Late) Dr. B. Jagannadh, was responsible for the entry of the team into the nascent and growing field of 'foldamers', which paid rich dividends and IICT found a place among leading institutions in the world. Starting from 1998, eight research articles were published in J. Am. Chem. Soc. and four in Angew. Chem., two of the most reputed chemical science journals.

Dr. J. S. Yadav took over the directorship of IICT in 2003, and the NMR group had his whole hearted support. During his term (2003-2012), the facility added five additional NMR spectrometers, which included state of art 700, 600 and 500 (wide bore) MHz spectrometers. Loosely speaking, he provided us 2500 MHz of NMR spectrometers. Of course this was the time scientific activity of the Institute was at its peak, with about a thousand students working for their Ph.D. Degree, most of them in organic synthesis. The number of research publications from the Institute was more than 600. Scientific output of India at that time was about 40,000 papers per year. It was incredible that about 1.5 % of the research papers of the country were originating from IICT. It was indeed very satisfying that our facility was catering to such a large community, with fairly effective and efficient service. The collection of NMR samples was streamlined quite well by Mr. P. L. Prasad. Dr. A. V. S. Sarma, who joined the group during this period, was great help, as the facility was growing rapidly.

After my superannuation in 2011, Dr. B. Jagadeesh has been running the facility efficiently and has been enjoying continued support of his directors, Dr. M. Lakshmi Kantam (2013-2015), who followed Dr. Yadav and present director Dr. S. Chandrasekhar.

Overall, it was a wonderful journey at IICT. As already stated, all the directors, I worked with, had full faith on our team and appreciated our sincere efforts. Indeed, I also enjoyed the advice and support of many senior colleagues and friendship and goodwill of the younger ones throughout my stay in IICT. It gave me great pleasure and satisfaction to spend my time in the laboratory. Incidentally, even after my superannuation in 2011, I continue to come to the lab regularly and spend time fruitfully for which I am thankful to Dr. Yadav, Dr. (Ms) Lakshmi Kantham and Dr. Chandrasekhar.



K. RAJESHWARRAO

CSIR-IICT Service: 1979-2012

It has been a wonderful and pleasant journey of nearly 34 years of my service in CSIR-IICT and I enjoyed my stay here very much-professionally and personally. On the occasion of Platinum Jubilee Celebrations, I hereby give in brief my experiences at CSIR-IICT.

After completing my post graduation, I choose to join RRL (H) due to the presence of three eminent personalities- Dr. PS Murti, Dr. Asghar Hussain and Dr. R Vaidyaeswaran. Dr. PS Murti and Dr. Asghar Hussain took special classes during my B Tech course at OU which attracted me to join here. I started my career here working on developing Technology for Phosgene including CO generation. During this project I had the opportunity to interact with all of them and also with Dr. AA Khan who was the project coordinator and later became the HOD. This project gave me a lot of experiences especially developing Team Spirit. We successfully demonstrated a continuous Pilot Plant at a capacity of 5-kg/hr to the clients for 100 hours operation. Due to UCIL Bhopal gas tragedy, production of phosgene was banned and only in-situ generation of phosgene was allowed. However, this incident gave the importance of process safety studies and Dr. AA Khan initiated and set up Process Safety Center in our division. He also initiated and set up Membrane Separation group and the societal and industrial benefits are visible today.

After returning from DAAD fellowship, I was briefly associated with Simulation, Optimization & Control group headed by Dr. Gangaiah. Dr. Asghar Hussain and Dr. Gangaiah were instrumental in developing this group into a strong Basic Fundamental Research activity. Since several sponsored projects were being executed I had to shift back to Process Design & Development group and worked on design projects for Chloropyriphos (CPP), Butachlor, Mono Chrotophos (MCP), Glyoxal wherein I could interact with Process Development group from Organic Chemistry and Mechanical Engineering groups. Here I observed the close interaction of the three group heads-Dr. UT Bhale Rao, Dr AA Khan and Mr. RN Parlikar to successfully transform the Bench scale projects to commercial scale.

During the execution of preparing the Front End Engineering Package for extraction of Nickel from Chromite Overburden ore - a collaborative project with 3 different labs, I had the opportunity to interact closely with Mr. RN Parlikar and other colleagues of Design & Engineering group.

Developing the Technology for CFC alternatives-HFC-134a was a challenging task. This was a multidisciplinary project involving catalyst development at bench scale, modular reactor setup and scaling up to a pilot plant level. I had a close association with our Project Leader Dr. V Srihari and we would discuss the reaction and separation strategy and evolved the best flow scheme. Here I had the opportunity to work with Fluoro organics group, Instrumentation group and Design & Engineering group and all of us worked together and successfully commissioned the Pilot Plant. During this project we had the complete support and guidance of Dr. KV Raghavan, then Director.

During the course of Technology development for TBBA, I had very good association with the Catalysis group led by Dr. M Lakshmikantam and we could successfully convert the Batch process to a continuous process and also prove it at Pilot scale.

I also had the opportunity to work in PROSAC group and completed process safety studies for various industries. With PROSAC assignments I had a wonderful association with the Mechanical Engineering group (Dr. M Radhakrishna and his team), Instrumentation group (Mr. K Ravindranath and his team) and our group in conducting Hazop, Safety Audits, Risk Assessment studies etc.

At the time of my superannuation, I was coordinating and guiding our project team in developing an eco-friendly and economical process for Hydrazine Hydrate and we were in the process of testing our technology at pilot plant scale. Here I may mention the work carried out by M Pradeep Kumar who successfully carried out bench-scale studies on a continuous basis (100 gm/hr) and tested the process at pilot scale of 8-kg/hr and made a significant contribution to this project. I feel very sad that he passed away at a young age and wish the team members to carry forward the work carried out by him and see the technology is commercialized.

I had a wonderful rapport and cooperation of all the team members in the projects I was associated with and difficult to name all of them here. It has indeed been a privilege to work for CSIR-IICT and I have thoroughly enjoyed my stay here and thanks for the sweet memories.

On the occasion of CSIR-IICT celebrating Platinum Jubilee year, I heartily congratulate all the Team Members of CSIR-IICT and convey my best wishes to them and wish many more successes and take the Institute to greater heights.



DR. D. KRISHNA

CSIR-IICT Service: 1983 - 2013

MEMORIES/EXPERIENCES

It gives me great pleasure to write a few words about the great organization IICT, Hyderabad, in which I have served for 30 years in different capacities. I still remember the first day in 1983, when I joined IICT Computer Center as Scientist B. I was cordially invited by Dr. P. J. Reddy, Head, Computer Center and I was introduced to all the staff members in the department. Having equipped with computer software development skills for scientific applications, I quickly realized that the department is the ideal place to do more work and improve my skills. During that period we used to work on 2nd generation computer IBM 1620, developing FORTRAN programs for mathematical and statistical models using punched cards.

Slowly the department has acquired third generation computer system Sperry UNIVAC V77/800 and I have started working with the new set up. I was able to pick up new skills like COBOL programming and relational databases. Finally when the department started acquiring personal computers, I was given the opportunity to work on the new system like Zenith PC/AT and various personal computers. We were encouraged to acquire new skills like Oracle database, FOXPRO etc. With the help and support of the head of the department, I was able to develop "Inventory Control and Management System" software for all CSIR labs in FOXPRO.

Starting from the year 1988, I have taken interest in doing research work by applying various statistical models to problems relating to other disciplines like Chemistry, Biology, Chemical Engineering, Environmental Engineering, sponsored projects from Pharma industries etc. I have registered for Ph.D. in Statistics from Osmania University under the able guidance of Dr.U.Visweswara Rao, Pincipal Scientist, NIN and I could successfully submit my Thesis within four years and awarded Ph.D. degree in 1991-92.

During my tenure at IICT, I have interacted with scientists from various departments like Dr.Yaseen, Dr. Sajid Husain, Dr. Kaiser Jamil, Dr. U. S. N.Murty, Dr.R.Nageswra Rao, Dr Sita Mahalakshmi, Dr K.V.S.N.Raju, Dr J.V.Rao, Dr.V.J.Rao, Dr.A.C.Kunwar, Dr.B. Jagannadh, Dr. D.Veeranna, Dr. K .Sivaji, scientists from NEERI Zonal labs and published number of research papers in various national and international journals. Number of research papers were published in national and international conferences. As IICT Computer Center was recognized by many Universities for carrying out research work, we used to guide the project work of B.Tech, M.Tech and even Ph.D. research scholars regularly. I was also a member of the core faculty of the BioInformatics course, which was conducted jointly by IICT, CDAC and JNTU. I was recognized as a Guest Faculty by Osmania University and also by IICT for conducting Bio-Statistics course for the orientation program for the Ph.D. scholars of IICT in the disciplines of Chemistry and Biology.

I was actively associated with various in-house and sponsored projects from other divisions like Biology, Chemical Engineering etc. The project works relating to three projects on Reliability Studies of ONGC offshore platforms sponsored by ONGC, design of experiments studies on the physico-chemical properties of Synthetic Aviation Lubricants(SAL), impact of agro-economic and socio-demographic indicators on the incidence of filaria disease in East and West Godavari districts, evaluation of lethal dosages like LD50 and LD90 by probit and logit models using the dose response data, detection of adulteration of edible oils by the application of neural networks, characterization of the species of Indian Anopheline mosquitoes by rule based systems are some of the challenging projects, which have given me immense pleasure and satisfaction.

After becoming the Head of the Computer Center in 2003, I have taken equal enthusiasm in executing various in-house projects like CSIR ICT project on refurbishing and revamping of the IT infrastructure of the entire organization, providing 24/7 internet and email services to the entire staff of the lab, providing regular conference IT facilities, video conferences, providing in-house trouble shooting IT Services, Software Installations, New Network Infrastructural facilities etc.

I was able to do all the research work, IT infrastructure management, IT and all related services with the help of my colleagues at the Computer Center and the help and support provided by the then Director, Dr. J. S. Yadav. I take this opportunity to thank all the scientific, technical, administrative and supporting staff, who have provided all kinds of help and service in successfully executing my jobs from time to time. I once again take this opportunity to offer my sincere gratitude to this great institution on the eve of its 75th Platinum Jubilee Celebrations.



DR. P. S. SAI PRASAD

CSIR-IICT Service: 1974-2015

CHERISHING MY ASSOCIATION WITH CSIR-IICT

It was on 26th of December 1974, when I was just 21 years old and fresh from college, I joined IICT, the then Regional Research Laboratory, Hyderabad. 26th December was also special for me because the school in which I studied celebrated its founder's day and I used to bag several prizes every year. On that day, I was asked to report to Dr. R. Vaidyeswaran, the senior most Deputy Director of the Institute. There was a glass partition between him and his stenographer with a sticker saying 'do not lean'. Unfortunately, I missed it and immediately there was a call from inside asking me to get in. After seeing the gentleman sitting in the room I started shivering. Apart from leaning on the wall there was another reason for me to be panicky. A few days before, I attended the interview for the post of Junior Laboratory Assistant, the lowest position in the scientific cadre. In contrast to the normal way of interviewing, four candidates were asked to come at a time on the day of the oral test. Though my number was 5 in the list, one among the first four was absent necessitating me go in the first batch. They kept on asking questions and who answered first was further interviewed. I could answer all but the last one. For the last question, the man sitting in the middle said "Don't you know about this product, it is manufactured in a factory just behind our lab". I, because of immaturity, got wild and said "Look Sir, this is the first time I am coming to Hyderabad. I do not know who manufactures what in the front or the back of your Laboratory". He said, "OK, OK, you go". To my surprise, it was the same man I met in the room. Noticing my condition he said "Please, wait outside for a while". Later, he took me to Room No. 124 and introduced me to Dr. V.S. Subrahmanyam and told him to put me in his analysis work. Dr. Subrahmanyam was very cool, talked to me in my native language and made me comfortable. He gave me a pack of white cards, of the size of a post card, with horizontal lines and asked me to collect some literature. A few days later, another scientist came to the room, inquired about me and I was asked to see him whenever he was in the lab. It was Dr. V. Kesavulu, who worked with the renowned P H Emmett in the USA. Those days most of the scientists used to come in full suites; I remember some of them like Dr. E R Saxena, Dr. Subrahmanyam himself, Dr. M K H Siddiqui, Dr. Zaman Khan and Dr. B. Rama Rao coming in this attire. In many departments, particularly ours (Heavy Chemicals Division), we had no attendance register. Scientists enjoyed so much freedom. Coming back to the scientific work, I was assigned the job of measuring surface area and pore size distribution of catalysts prepared in the entire Laboratory. On the lab-made glass high vacuum system it was quite tedious and I used to work upto 10 clock in the night, when I was dropped at my house in an office car. A few days later, we had a serious problem with liquid nitrogen. I proposed Prof. Bhatnagar of Hyderabad University that I would help setup their plant but with a condition that half the product should be shared with our laboratory. He agreed, since RRL was the mentor Institute before they came up with their facilities. With this we used to run our show. I gratefully acknowledge here the services of Zanab Hider Ali, who used to call me Pershaad Saab. Our conversation in his broken Telugu and my broken Urdu was really enjoyable. It was then our lab assistant, Zanab Sardar Hussain came to my rescue teaching me some Urdu. A few years later Dr. Kesavulu decided to leave the job. While boarding the flight to the USA he hugged me and said, "I wanted to see you as someone, but I had to leave the country, however my blessings are always there with you". My association with Dr. Vaidyeswaran continued till he retired. I remember, he filled my M Tech application with his own hands. Later, he introduced me to Dr. K B S Prasad who was largely responsible for my professional growth.

A few years trod after my joining the lab. I was becoming restless, not happy with the routine work. One day I suddenly barged into Dr. P S Murthy's room without any appointment. He looked at me angrily and said "What's the matter?". I said, "I

understand, you are organising coaching classes to the graduates working in your division for the AMIChE examination. Why don't you please consider people like me working in the other divisions as well". He was busy and asked me to see him later. Obviously, after collecting my details one day he called me and said "Go and attend the classes". When the problem came with my insufficient experience, he advised me to continue with the coaching and appear for both the parts of the examination together during the following year. This helped me get through the examination along with others. Dr. Asad Ali Khan, Dr. V. Srihari and Dr. Suresh Kumar were some who taught us Chemical Engineering, apart from a few senior scientists from the Mechanical Engineering group. This aspect is typical of RRL (or IICT) to bring up eligible people working in lower rungs.

Dr. G S Siddu was the director those days. He gave full freedom to his colleagues. One great aspect of Dr. Siddu was worth remembering at this juncture. Whenever he used to call staff meetings in the auditorium, along with him (who spoke in English and Hindi) there were two more people, one on either side of him to translate whatever he said in Telugu and Urdu, respectively. Dr. Siddu had a jovial attitude. Once a brand new bicycle of one of our colleagues parked inside the campus was stolen. I, along with my friend, met Dr. Siddu in his office to complain. He made us sit comfortably, offered coffee and in this process we forgot the reason why we went inside. He finally came to know of it and said "I too lost my old scooter kept in my quarter and when I lodge a complaint with the police I shall include your's too". I do not know whether Dr. Siddu got his scooter back, but my friend did not see his bicycle again. Dr. Hussain Zaheer, the founder director of the Institute, superannuated by the time I joined the Lab, but he used to attend the lab continuing his interests. I remember the day when he was no more, the entire lab was shut voluntarily as a mark of expressing its affection towards him.

The era of Dr. Thyagarajan was lively. We found a real orator in him. With that reverberating voice people were mesmerized. He continued the legacy of Dr. Siddu. I remember him visiting all the labs and interacting with staff. At times he used to come wearing yellow trouser and green T-shirt. Only once when my application was processed for a junior DAAD fellowship I had the opportunity of meeting him. He explained me in detail how to face the interview. Unfortunately, I did not get the fellowship due the late arrival of the placement letter from Germany.

At a time when the Institute needed infusion of new energy, there came Dr. A V Rama Rao as Director. He viewed the lab in a different perspective. He oriented it towards a mix of basic and applied research. The Institute started publishing papers in high impact factor journals. Scientists were recognised by bagging prestigious awards. It was in his tenure the lab was renamed as Indian Institute of Chemical Technology. I had the opportunity of associating with him as Secretary, when he was the President of Catalysis Society of India, Hyderabad Chapter. Once I tried to give him a prepared note for his speech which he gently refused. But when he addressed the audience I was stunned to know the issues he raised were very close to what I wrote. Apart from these he spoke on many aspects faced by the Society and he even proposed solutions for them. Dr. Rama Rao was the director when we first started working on CFC134a. One day in a meeting everyone in the committee room were pouncing on the Catalysis group for lack of progress in the project. Suddenly I got up and said 'Sir, I assure you we will be ready with the catalyst in just 3 weeks.' Dr. Rama Rao liked that reaction. The support he gave me there after was amazing. In another occasion I sent him a hand written letter describing my future plan of work and requested him to allot some budget at least in the following financial year. Pat came the answer, "why next year? Start now".

My association with Dr. K. V. Raghavan was even more intense. I could see a perfect gentleman in him. I had the opportunity of travelling with him to attend several official meetings. One day we were to go to Delhi together. I reached the old airport at a time when the boarding was already announced. He was waiting for me anxiously. Seeing him I realised my mistake of arriving late. This gentleman spoke to me, 'Sai Prasad! I should have informed you yesterday about the change in departure time of the flight.' The



subsequent journey was so cool we secured the project. He was an amazing personality. He went through every bit of the information that reached him and if found suitable got translated into a presentation. I could see the glow in his eyes when the 5m long, 40mm dia fixed bed pilot reactor was put under operation after several decades of its installation in the Reaction Engineering Plant.

Then came the dynasty of Dr. J. S. Yadav. He had a typical way of dealing with people; he remembered his associates usually by their work, not by name. Quite often he used to call me Sai Prakash while discussing the progress on pyrazinamide. He was as keen in budgetary issues as he was in chemistry. One day he called me inside his office and asked me to associate with the project related to aminobutanol production. At a time when even a few millilitres of the raw material was not available, myself, along with Dr. K. S. Rama Rao processed the reaction in the Reaction Engineering Pilot Plant and we could produce a little over 10 lts of it, for which Dr. Yadav was happy.

An opportunity knocked the doors of Dr. M. Lakshmi Kantham in the form of Director of this Institute. People attributed it luck, but I would say she richly deserved it. In my four decades of experience I did not see any other woman scientist working late in the night sticking to the lab work. That was the dedication and commitment to work she showed, standing a lone example for sacrificing personal life to research. When she was the head of I & PC division her office was always busy with people from industry. Hats off to her.

I also had the opportunity of working with Dr. S Chandrasekhar, though for a brief span of time towards the fag end of my service. What impressed me the most was his punctuality. Meetings start and close on time. Only science, no gossip during meetings. Particularly his lucid presentations were awesome and they reflected his depth in chemistry. I am happy to note that under his leadership the Institute has been maintaining its standards and even rising higher. His keen interest in keeping the premises clean and green caught the attention of several visitors, apart from the staff.

As I look back, during the four and odd decades the Institute has grown in leaps and bounds. This lab gave birth to another Institute. The Biochemistry Division of the Laboratory emerged as a separate Institute in the name of CCMB. From a regional laboratory this organisation itself rose to the level of a national Institute. Several projects have been developed. Within my comprehension, the 24 tpd Lurgi gasifier, the CFC-134a pilot plant, the integrated Pyrazinamide plant and several such scaled-up versions, particularly those of the Oils and Fats Division developed by Dr. R B N Prasad, stand testimony for the collective efforts of the scientists and engineers of this Institute. The Institute distinguished itself as one among a few in the CSIR network having the capacity to translate lab results into commercially viable technologies.

Finally, when I think of the past four decades of my life, I consider myself blessed with the opportunity of working with this great Institute. It was possible only with this superb organisation, an individual in the lowest position joining with a bachelor degree in science, can acquire higher degrees and simultaneously rise to higher positions in the ladder and retire comfortably after contributing substantially to the Institute in particular and the nation in general.

My salutations to the great Institute and the great people.

DR. (MS). M. LAKSHMI KANTAM

CSIR-IICT: 1984 – 2018

MY MEMORIES OF RRL-H AND CSIR-IICT

I am very proud of my past association with a great organization, CSIR-IICT for more than three decades. I would like to congratulate the past and present staff of the Institute on the Platinum Jubilee celebrations and wish the members of IICT the very best.

After completion of my Ph.D. at Kurukshetra university, Haryana (1982), I came back to Tenali and joined as a Lecturer at JMJ college for women, for a brief period of time, in the same college where I did my graduation. Then came the turning point of my life, i.e., joining the Regional Research Laboratory, Hyderabad, now CSIR-IICT. In 1984, Dr. G. Thyagarajan, Director, RRL (1981-1985) appointed me as Scientist B in RRL, a premier research laboratory in Chemical Sciences and Technology. Under his able leadership, RRL has transferred several agrochemical technologies and excellent team work of all the divisions. This great Institute is well known for its contributions in the pharma, agrochemical and other industries. Interestingly, at RRL, I found the potential of fulfilling my dream of finding applications of research in the process Chemistry and technology development. I joined the electrifying atmosphere of the Institute and worked with Dr. Zafar Jamil and Dr. B. M. Choudary, where a lot of research was going in the area of process chemistry to fulfil the growing needs of the country towards self-reliance. Thus, I decided to pursue my career in technology and process development. I was well aware that good basic science only can lead to good technology and one has to strike a balance between them to provide a good technology 'on time'.

It is a great honor to work under the leadership of Dr. A. V. Rama Rao, Director (1985-1995). Dr. A. V. Rama Rao has provided an inspiring leadership to this Institute and during his period RRL, Hyderabad has been renamed as Indian Institute of Chemical Technology and has excelled in both basic and applied research in tune with the requirement of changing times and challenges with the opening of economy. He is an exemplary scientist who believes in translation research, a successful and leading entrepreneur.

Dr. K. V. Raghavan, Director, (1996-2003) has provided dynamic leadership and during his time, IICT has established several pilot plants. IICT has maximum number of patents granted during his time and several were licensed to the industry.

Dr. J. S. Yadav, Director (2003-2012) has provided an enthusing leadership to this Institute and during his period CSIR-IICT has excelled in both basic and applied research. The Institute under his leadership occupied the pride place among CSIR laboratories and was in no. 1 position in scientific publications for several years.

My prime objective was to serve the chemical, pharmaceutical and strategic sectors through continuous efforts in the area of catalysis. During the course of my scientific career, I have completed several industrial projects in applied research in Inorganic & Physical Chemistry Division, while continuing my basic research in the areas of catalysis for sustainable product/process development. Several of my basic research results are being utilized for the industrial process development today. I served as Head, Inorganic & Physical Chemistry Division for 9 years and rose to the position of Director, CSIR-IICT in 2013.

The moment I took over the reins, I refocused our orientation on technology and process development through involvement of Industries, in parallel with continuing basic research in the chemical & allied sciences and engineering. Besides this, my focus is also on nurturing young talent and creating skilled and professional scientific human resource. Several of my colleagues received honours and awards during my tenure as



Director. CSIR Bhatnagar award was given to Dr.Venkat Mohan and Dr. Jadadish and Dr. Subba Reddy became Fellows of National Academy of Sciences. IICT has received the Technology Award .

On 4th August 2013, IICT celebrated its 70 years celebrations and Sri Jaipal Reddy , the then Science and Technology Minister of India was the Chief Guest.The closing ceremony of 70years was celebrated on August 21st in the presence of Hon'ble Vice President of CSIR, Shri Jitendra Singh and Sri Venkayya Naidu was the Chief Guest.

I take this opportunity to acknowledge Dr. B. M. Choudary, MD, Ogene Systems India Ltd., Hyderabad, all my former directors, Dr. G. Thyagarajan, Dr. A. V. Rama Rao, Dr. K. V. Raghavan and Dr. J.S. Yadav who were responsible for my growth and my special thanks to Prof. M. M. Sharma, Prof. C. N. R. Rao, Prof. C. L. Khetrapal, Prof. G. D. Yadav, Prof. M. K. Chaudhuri and all my students and colleagues, my collaborators from India and abroad for their support.

DR. R. B. N. PRASAD

CSIR-IICT Service:1980 – 2015

MY ASSOCIATION WITH CSIR-IICT

I had a fortune of participating in the Golden Jubilee, Diamond Jubilee and Seventy Years Celebrations of this wonderful Institute and looking forward to witness the Platinum Jubilee Celebrations of CSIR-IICT. I was really thrilled when I was first entering into the main building of the Regional Research Laboratory (RRL), which was inaugurated by Pandit Nehru on 2nd January, 1954 (a plank lies at the entrance of the main building). Incidentally, my date of birth was just eight months after this historic event and it always gives me a great feeling. I always have a feeling of entering into a holy temple whenever I walk into the main building of IICT. Immediately after completion of my M Sc., from Osmania University, I have joined in RRL as CSIR-JRF in Oils and Fats division under the guidance of Dr S Venkob Rao. Even though, I had a dream of doing my Ph D in a typical organic chemistry area in IIT-Kanpur, I joined in the area of oils and fats just by chance. Today I do not have any regrets and perhaps GOD has created me a good destiny. Due to this unexpected entry, I could able to get an opportunity to lead a very active group of lipids of CSIR-IICT and contributed significantly for the growth of Indian Vegetable Oil and Allied Products Industry with the support of my dynamic group of colleagues and students. This great Institute provided me a HOLY PLACE to work day and nights to satisfy my little urge to do something in the area of lipids.

I was fortunate to work with all the directors of this Institute except Dr Hussian Zaheer. I have entered into RRL during Dr. G S Sidhu's tenure as CSIR-JRF (1976) and he made me permanent employee of this Institute as Senior Scientific Assistant (1980). He was a great human being and I really enjoyed his blessings for several years. Dr G Thyagarajan elevated me to Scientist B position in 1981 and I could able to see a great science administrator in him and I have learnt my first lessons of science administration from him. I have learnt meaning for hard work and will power from Dr A V Rama Rao. Dr K V Raghavan elevated me as HoD of Lipid Science & Technology Division and he provided me an opportunity to mentor several younger colleagues. Dr JS Yadav provided all the logistics and support to project Lipids Group as Centre of Excellence for Lipid Research. The lipids group moved into the New Building during his tenure and he has molded me as a scientific administrator. Dr Ahmed Kamal (Acting Director) provided the necessary support to Centre for Lipid Research to settle down in the New Building. Dr M Lakshmi Kantam's support to Lipids Group was really amazing and she gave our group a great helping hand. Dr S Chandrasekhar, the present Young and Dynamic Director taken over charge as director of the Institute during June, 2015, just before three months of my retirement. He has provided me an opportunity to continue my association with this great lab by creating a position of Platinum Jubilee Mentor. I do not have words to reciprocate his affectionate regards being extended towards me. I have got so much from IICT and now as Mentor I am trying to give back something to CSIR-IICT without expecting anything from the Institute.

I have grown along with this Institute and it has been an amazing experience for me all through. I am fortunate to enjoy four different phases of career in this lovely Institute as Student, Scientist, Senior Most Chief Scientist and now as Mentor. The treasure of knowledge and experience acquired by me is just because of wonderful guidance of my senior colleagues and affectionate support of my junior colleagues and students. CSIR-IICT provided me so much freedom to choose my area of research interest and I never had restrictions from any Director or Head of the Departments. During 11th Five Year Plan (2007-12), CSIR-IICT had given an opportunity to my team to establish "The Centre of Excellence for Lipid Research" with the financial grant of CSIR. This dedicated and unique state of art national facility was established for strengthening the ongoing research activities of lipids group in the areas of Vegetable Oils, Biodiesel and



Lubricants. I am very happy to observe that about 300 industries and academic/R&D Institutes utilized the facilities of Centre for Lipid Research during 2007-2017.

I am very happy to be part of a group with an outstanding credibility in the area of oils and fats under the leadership of legendary personalities like Dr K T Achaya and Dr G Lakshminarayana. During early fifties the main focus of lipids group was on development of technologies for processing of non-traditional vegetable oils particularly cotton seed oil to augment the shortage of edible vegetable oils in India. RRL established a cottonseed oil extraction and processing pilot plant and provided the technical know-how to the industry during sixties and seventies and Indian industry continues to produce this oil for the last 30 to 40 years. Today India is producing about 1.2 million tonnes of cottonseed oil worth of more than Rs 6,000 crores per annum and the whole credit goes to CSIR-IICT for this outstanding contribution. This was followed by pioneering research by the lipids group in the area of fatty acids, fatty alcohols and their derivatives. The significant work of the Lipids Group on castor oil provided a great direction to the Indian castor oil industry particularly in the development of technologies for several value added products from castor oil.

I was fortunate to lead “Enzymatic degumming of rice bran oil” project which is one of the most successful star projects of CSIR-IICT and this technology was transferred to about 27 clients. This technology could able to gift a wonderful healthy rice bran oil to the Indian Population. This technology has bagged several awards like CSIR Technology Prize (2005), National Award from Technology Development Board of DST (2009) along with the industry M/s AP Organics Ltd., (The award carries trophy, citation and a cash prize of Rs 10 lakhs each to CSIR-IICT and industry) and Industrial Green Chemistry Award (2009). From 2002 onwards this technology is being practiced by industry and about 7 million tones worth of about Rs 40,000 crores of rice bran oil has been produced employing enzymatic degumming process. Even now, about 5 to 6 lakh tonnes of rice bran oil is being processed per year employing enzymatic degumming technology. As India is importing about 15 million tones of edible oils every year, production of every additional drop of oil is important to save the foreign exchange for the nation.

I was also involved very actively in the formulation and execution of another strategic project “Synthetic Aviation Lubricants” sponsored by CHT, Ministry of Petroleum. IICT is the nodal agency for this project with several other organizations as participating Institutes. As India is dependent on advanced countries for its aviation lubricant requirement, IICT has taken this first national initiative for developing these strategically important products for the nation. CSIR-IICT and its partner labs developed two aviation lubricant candidates during the execution of the project and presently IAF is making efforts to evaluate these two lubricants on defense aircrafts.

The lipids group of CSIR-IICT has also made significant contributions for the formulation of ‘Biofuel Policy Report’ prepared by Planning Commission in 2002 and also for the Andhra Pradesh State Government’s Biodiesel Programme. In addition, several significant products were developed namely bio-pesticides from karanja cake, solid acid and base catalysts from glycerol (strategically important for energy and rural development sectors), process for the extraction of omega-3 fatty acid-rich oil from eri pupae (socially relevant project to help the farmers), specialty fat liquors for leather tanning (import substitution), microbial lipids (health sector), specialty oleochemicals (for use as surfactants, lubricants etc.,) from non-edible oils like castor oil (to enhance the value of minor oils) and structured fats and nutraceuticals (diacyl glycerol-rich oil, reduced calorie fats etc.,) based on vegetable oils. Lipids group has also initiated a very ambitious project for the identification of potential vegetable oil sources to reduce the imports for both food and industrial applications by screening the less known and unknown sources of tree-borne oilseed sources.

I had an exciting tenure of Head of the Department of Lipids group and I always cherish with the team work of this wonderful group. Today, Lipids Group of CSIR-IICT is the only

dedicated group in the country with the expertise of understanding the chemistry, technology and biochemistry related to lipids with state of art facilities. I am confident that my younger colleagues under the leadership of Dr Prabhavathi will continue to excel and provide solutions to the industry problems and also come out with novel products for the benefit of common man.

I am quite satisfied with my association with this great Institute. I had enjoyed the affectionate guidance of my senior colleagues and wonderful support of my younger colleagues all through my career. Based on my long experience, I take the liberty to comment that IICT is continuously helping small industry by organizing conferences, business meets and during informal discussions. Based on these small advices, several industries are fine tuning their processes or improving the quality of their products and contributing significantly to the economy of our country. I feel that we are not quantifying this type of casual advices being given to industry and we must try to quantify this type of unnoticed contributions.

I am happy to note that CSIR-IICT continued to make its remarkable progress under the dynamic leadership of Dr Chandrasekhar and I congratulate him and all the colleagues of the Institute for organizing the Platinum Jubilee Celebrations.



DR. M. SUBRAMANYAM

CSIR-IICT Service: 1986 – 2017

It was during 1985-1995, Dr A. V. Rama Rao uplifted the Basic as well as Applied R & D activities very adequately. He could impress all the disciples in the lab that a good basic research only leads to a good applied research and ultimately leads to technology development. This attitude of his direction brought lot of evolutionary improvements with revolutionary breakthrough's in the laboratory.

One day Dr. A. V. Rama Rao came down to the ground floor of Inorganic and Physical Chemistry Division corridor on an un-scheduled visit and questioned couple of young researchers stating, tell me in three sentences; how your research work is helpful to a common man? He was unsuccessful in getting any answer nearer to reality out of all the ten individuals he questioned. He left the corridor with a heavy heart stating to the assembled gathering that, ask your respective supervisors to educate you all first about the importance of your work and then work for execution of your work plan etc.

In 1988 Dr. A. V. Rama Rao introduced encouragement of his colleagues for their R & D activities on every annual day of the lab for basic as well as applied areas. By introducing impact factor criterion for journal publications as yard stick for giving awards to research colleagues in the lab. The year 1988 the criterion was whomsoever achieves an average impact factor of two will get the award certificate. In 1988 it just happened that I had ended up with 1.9. I was unhappy of not passing through the threshold limit held by the awards committee. I could share my narrow missing award situation to Dr. J. S. Yadav and in turn my plight was informed to Dr. A. V. Rama Rao. The director was so conscious and dynamic about encouraging true workers. He could instruct the award committee to include award certificate on my name under the heading note worthy R & D contribution award. Such are his bold decisions for encouraging true workers. I am privileged to inform you all that such encouragement at initial stages made me to work hard and got me up to Scientist G and also passing all the scientist levels in one attempt from C position and also as CSIR Emeritus Scientist during 2008 to 2013. Hats off to our Padma Vibushan Dr. A. V. Rama Rao.

The activities in catalysis during 1985 were like development of ammonia synthesis catalyst for improved life. In fact Haber's iron promoted catalyst has a life span of more than ten years and is being used all over the world. At that juncture Dr. A. V. Rama Rao gave a detour to catalysis for fine chemicals synthesis which has lot of scope for meeting the demand of eco-friendly fine chemical synthesis area etc. Many of the catalytic chemist colleagues could grow because of his change of R& D direction in the group. This enabled us to go for picoline, pyridine, lutidine, collidin, pyrazine and their derivatives synthesis etc and to the extent of demonstrating a technology. All of us owe him a lot. When we say this he says it is his duty. That is Dr. A. V. Rama Rao. He only motivated us that we can bottle the product made through catalysis especially heterogeneous one. Otherwise all the basic conversions, yields and selectivity reported were only chromatographic values and not the separated ingredients etc. at all. Thus Dr. A. V. Rama Rao gave life to catalysis which gives money. He showed pathway for innovation.

DR. V. J. RAO

CSIR-IICT Service: 1988 - 2017

CSIR-INDIAN INSTITUTE OF CHEMICAL TECHNOLOGY - A RESEARCH ORGANISATION FOR COLLABORATIVE AND INTER-DISCIPLINARY R&D

"Chemical Process Development" involves many experts to participate and contribute to the common objective of developing a viable process for demonstration to Industrial Clients of IICT. Organic photo-chemistry research domain involves expertise in organic chemistry and photochemistry. Indeed, there were several organic photochemical processes developed at CSIR-IICT at Kg level: (i) heterogeneous photo-catalytic approach to vitamin A photoisomerization for all-trans-vitamin A; (ii) methyl chloroformate (MCF) to chloromethylchloro-formate and also di-phosgene via photochlorination; (iii) dime-thylcarbonate to tri-phosgene via photochlorination; (iv) 4-tert-butyl toluene to 4-tert-butylbenzylchloride via photochlorination; (v) photochlorination of benzene to BHC (gammoxin); (vi) Photo oxygenation and many more at laboratory bench scale level. The chemical process for BHC or Gammoxin starts with organic chemistry and photochemistry expertise to initiate lab scale process chemistry, at this stage analytical chemist intervenes and provides data on the analytical method development, % conversion, product identification, selectivity for the desired isomer and % yield. The inputs from the analytical chemists were taken to improve the process by tuning the experimental conditions. The second stage where lab scale increased to ~100 g process and now Chemical Process Engineer associates with the experimental data generation. Chemical Process Engineer provides inputs in-terms of heat transfer, mass transfer, mixing, concentrations to be adjusted, improving the selectivity and other info, which are vital for scaling up to pilot levels. Third stage success at pilot scale of ~5 Kg involves design of pilot scale reactor (home designed) and running it to, not less than 10 runs and where chemist, analytical chemist, technical assistants, technical officers and chemical process engineer work together to see the success of the process. The successful conduction of pilot scale chemical process and the data generated will be passed on to the Chemical Engineer (another expert; Fourth Stage) to conduct computational simulation of the process and this provides info on the production reactor design. The production reactor info will be utilized by Design Engineers (Stage Five) to place order for fabrication, upon consideration of materials of construction, lamp light distribution in the reactor, configuration of the reactor, etc., of photochemical reactor for the production of BHC or gammoxin. A Team of experts from IICT will visit the industry cite to confirm the commissioning of the reactor, functioning of the reactor and the production of product with defined purity and selectivity to the level of expected quantity per day.

Expertise based collaboration is very much essential even in basic R&D, for ex: involved in collaborating with various experts within the IICT like: Theoretical Chemist, Biologists, Pharmacologists, Mass Spectral Specialists, Physical Chemists, NMR Specialists, Physicists, Chemical Crystallographers, Catalysis Experts, Photo Physicist, Polymer Experts, Chemical Engineers, Design Engineers, and also with other Institutions and Universities. This approach provided a strong culture to the graduating students of CSIR-IICT, that it is very important to understand organic chemistry along with the other areas of research. Further, these collaborations guide the graduating students to higher level in terms of interpersonal relationship, communication skills, humble approach, may be entrepreneurship, organisational capacity and continued learning process.

Acknowledgement: I acknowledge Director CSIR-IICT for providing me an opportunity to write this article. I thank CSIR New Delhi for Emeritus Scientist Honour.



DR. U. S. N. MURTY

CSIR-IICT Service: 1984-2017

I have the pleasure of writing this message on the auspicious occasion of Platinum jubilees celebrations of CSIR IICT Hyderabad. A jubilee evokes life giving memories. It is a time to rejoice. It is a time to look back with gratitude to the Lord and to look ahead with enthusiasm, trust and confidence. As we review the history of 75 years, we have enough reason to thank god for all the blessings CSIR-IICT has received. Truly, much has been achieved. But much more remains to be done. Our pioneers have given us the example. We need only to carry out the good work they began with dedication and commitment.

I started my research career in WHO program at VCRC (ICMR) Pondicherry in 1981 followed by CSR&TI Mysore later I joined IICT, the then RR Labs, in 1984 and successfully completed 32 years of fruitful and potential R&D service at Hyderabad.

I have enjoyed my work and time at IICT and appreciate the support that I received from the great Institute during my tenure. It's my privilege to work under eminent directors of this great Institute like Dr. G. Thyagarajan former director of RR Labs, from whom I learnt how to address large audience, how to give scientific presentation and how to present yourself before any good gathering. From Padma Bhushan Dr A. V. Rama Rao, former director of IICT is an iron man with golden heart, from whom I got the time discipline and dedication. I cultivated a life of discipline, at both personal and professional level during his tenure. Dr. K.V. Raghavan's period was the golden era to Biology Division and he sowed many new and novel societal projects which were grown as giant trees and many of them have been sheltered under its canopy. In fact my North East journey was initiated only due to his encouragement which resulted many fruits including the present position. Dr. J. S. Yadav's tenure can be considered as diamond period for our group and we received an unconditional support from him which yielded many awards and good publications.

Dr Lakshmi Kantham, a dynamic lady by nature and dedicated scientist by profession, excellent human being by person, extended out right support to my work and encouraged me at every step of my project execution. I sincerely thank all the above scientific pillars for their kind gesture and support. For the last one and half year I have been associated with young and challenging director Dr S. Chandrasekhar who encouraged me to apply for the Director position at NIPER Guwahati. He also nominated me as Project Director of NIPER Hyderabad in May 2016. Ever since I took charge, the major task was NIPER JEE 2016 and I have successfully done this job as a Chairman with the unforgettable support of Dr Chandra. He made me as an acting director of IICT that gave me breadth of experience which will be a value addition for my future assignments. I am thankful to him and wish him success in all his endeavours. when I enter into the campus I always get warm welcome of audible, enjoyable calls from birds that fill my mind with positive energy.

I had a wonderful experience working with this great Institute (IICT) and have learnt many new things which I am sure helped me to lead three National Institutes like NIPER Hyderabad, NIPER Mohali and NIPER Guwahati. The time that I have spent with this lab is one of the best times of my life which I am sure I will cherish throughout my life. I always feel that I am very much part of the IICT family! I've been given some amazing opportunities, had some once in a lifetime experiences and met some of the most remarkable and inspiring people.

On this significant occasion of our "Platinum Jubilee" Happy Birthday to the CSIR IICT Hyderabad, and congratulations on 75 years of truly life-changing R&D. This Institute continues to get better with age and I look forward to celebrating many more milestones with the best in the country and abroad May God abundantly strengthen and support CSIR-IICT in the years ahead.

DR. BENJARAM MAHIPAL REDDY

CSIR-IICT Service: 1984 – 2017

A GLORIOUS INSTITUTE FOR PROFESSIONAL GROWTH

I joined in this great institution on 1st March 1982 as CSIR Junior Research Fellow, after successful completion of M Sc degree in physical chemistry from Kakatiya University, Warangal. It was an exciting experience to meet a cluster of highly qualified scientists representing the entire nation with different languages and cultures under one roof. That time there were hardly 10 students in the Institute and we all used to meet every day three times at least in the canteen during morning tea, lunch, and evening tea. All students were treated well in the Institute as budding scientists, and we all were extremely happy and very comfortable with 600/- rupees monthly fellowship.

My PhD supervisor Dr VS Subrahmanyam was very friendly and gave full freedom to work independently from day one. Dr ER Saxena, a wonderful person whom I never forget in my life was heading the department. Within few days of joining, I got the opportunity to interact with Dr Nabin K Nag, a pool scientist in the department, who introduced me to the fascinating field of Industrial Catalysis. My colleague Dr KVR Chary was already working with him after joining few months before me. Dr Nag left the Institute to take-up a better assignment in the US within three-months of my association with him. However, he provided the necessary help and support to continue our work through postal correspondence and occasional telephonic conversations. We struggled to get ultra pure oxygen and continuous supply of dry ice for carrying out low-temperature oxygen chemisorption measurements on some of our metal oxide catalysts designed by us. Despite the hardships, we came out with 4 excellent publications in high impact international journals [Journal of Physical Chemistry (ACS), Faraday Transactions (RSC), Applied Catalysis (Elsevier), and Reaction Kinetics and Catalysis Letters (Springer)] within short time. Our first publication in the Journal of Physical Chemistry in 1984 was a record in the Institute to have a paper in ACS journal after 10 years gap. Based on my outstanding performance in the academics and applied research, I was offered a junior scientist position in 1984 that I continued till my superannuation in 2017 as Chief Scientist and Head of the largest Inorganic and Physical Chemistry Department.

Over the period of more than 30 years, the department has grown to the level of 30 plus scientists with 140 PhD students at one time. The department also acquired the state-of-art facilities from time-to-time owing to the immense support from the management over these years. As realized by the management from the very beginning about the significant role of catalysis science and technology that plays a key role towards the economic and sustainable growth of the country an unmatched support was given to this department in terms of man power and the equipment. As known, almost 85% of all chemical products being produced involve at least one catalytic step. Further, the catalysis department is very proud of producing several technologies in various domains such as clean energy, environment, health, and fine chemicals synthesis. This department produced a good number of high quality PhDs who matured as leaders of this field. The amount of freedom that one gets in CSIR-IICT to work on their favourite subject is unparalleled to any organization in this country.

I enjoyed the freedom at work, and superannuated happily in February 2017. I had the privilege of working under the regime of 6 eminent Directors and all were very cordial and highly supportive for my career growth. I will be serving this great Institution for few more years in my 2nd innings as DAE Raja Ramanna Distinguished Fellow.



DR. G. V. MADHAVA SHARMA

CSIR-IICT Service: 1987-2018

MY JOURNEY FROM RRL-H TO CSIR-IICT THROUGH IICT

Greetings, Dear IICTians – Past and Present!

The visionary Nizam of erstwhile Hyderabad State and his scholarly advisors must be first remembered for our existence through the great 74 years old 'Mother' IICT. "Endaro Mahanubhavulu, Andari Krishi Phalitham", today's our celebrations. I became a part of this blessed mother in December 1987, and worked till recently (February 2018). In a nutshell, I can say, it gave me plenty of opportunities to work in diverse scientific and administrative areas and financially I had sufficient earnings till the last day of my service, not only to carry out my work, but even to support others. It is like "ChelimaloNeellu", as much as you draw, you will have sufficient for others.

My first assignment, synthesis of Z-11-octadecenal, a pheromone, was a success along with Dr. S. Chandrasekhar. Since this initiative by Dr. A. V. Rama Rao, Director, the efforts of several colleagues under the able leadership of Dr. J.S. Yadav, made IICT today a premiere Institute in IPM, with a centre for excellence, whereby, our enthusiastic young colleagues are helping the farmers in agricultural fields! Laudable achievement.

I was one of the earliest scientists to visit USSR under ILTP program. Dr. A. V. Rama Rao wanted me to go to Moscow to work with doyen of carbohydrates, Prof. N. K. Kochetkov on 'Carbohydrate based Synthetic Vaccines. Though life was very tough during the 'Perestroika' days, I am glad to say that, after my return, I became one of the excellent practitioners of carbohydrates in organic synthesis

In late 80's, we started working on asymmetric reactions in industrial scale using chiral catalysts to effect 'chiral switch' and used enzymes extensively in synthesis. Of late, IICT is investigating extensively on chiral drugs, enzymatic reactions, biocatalysts, microbes for molecules, with the relevance to the present times. CSIR proposed missions on enzymes and biocatalysis!!

IICT was the first one to seize the opportunity to undertake Contract Research under the leadership of Dr. K.V. Raghavan as Director. CytoMed, USA was probably the first company, for which, my colleagues Dr. B.V. Rao, Dr. P. Radha Krishna and I, developed new routes and process chemistry from carbohydrates. This experience not only helped us at IICT to bring finances, but also gave occasions to learn the client's expectations on quality, deliveries and other aspects. Radha Krishna, eventually was responsible for the preparation of Tech. Transfer document. Since then, for the next several years, we all (Dr. B.V. Rao, Dr. P. Radha Krishna, Dr. K. Nagaiah, Dr. D. S. Bose, Dr. A. V. Narsaiah, Dr. Subhash Ghosh and others) worked with several clients from abroad (SKB, DuPont, ArQule, Givaudan and others) on Agro, Pharma and Fragrance Chemicals. A golden period for many colleagues at IICT!

I worked with NIH during Dr. Rama Rao's tenure, wherein, we got a lead molecule with anti-HIV activity, which was better than the natural product that was in clinical trials. In 2002, during the 10th FYP, under Dr. Raghavan's leadership, I got an opportunity to lead a network project on asthma. Dr. Radha Krishna and I were fortunate to get a lead molecule for PDE-4 from a lot of 64 compounds, which finished its pre-clinical studies by the end of 11th FYP. Later, in 12th FYP, under Dr. Radha Krishna's leadership we got a lead for COPD. We both along with Dr. B.V. Rao enjoyed working with Ranbaxy and Dabur on drug discovery projects. Lot of fun and learning for all of us. I had close association with CSIR-IICB, Kolkata from 2002 till 2017. It gave me a great prospect to become an Expert Member in their RC, for two terms, which is a rare 'distinction' for IICT Scientists!

The year 2002 was a great year in my career. Along with starting the Asthma project under 10th FYP, my group started working with Dr. Ajit Kunwar, and developed a new field on 'Foldamers'. Our group synthesised the peptides from non-natural amino acids, whose conformational analysis was studied by Dr. Kunwar's Group. Our efforts led to the identification of several secondary mixed helical structures and turns, besides super-secondary structures like helix-turn and helix-turn-helix and hybrid peptides, leading publications in JACS (3) and Angew Chem. (4) and other journals and several Ph.Ds from both the groups. In addition, the research group of Dr. R. Srinivas has carried out studies on the mass spectral fragmentation on the foldmers and reported excellent results. Our combination (AKC, RS and GVMS) led to 60-70 publications on foldamers and their studies!!

I was closely associated with Dr. J. S. Yadav, Director, since my Ph.D. days, and learnt 'Acetylene Chemistry', whereby, together we could develop an efficient method for the synthesis of chiral propargylic alcohols, which is affectionately called as 'Yadav Reaction'. My continued association and spending long hours with him made me to grasp the aspects of chemistry. For one of the projects on terpene synthesis, when I was hesitant to undertake the project, Dr. Yadav said, MY HOO NA (I AM THERE, NO)! A boost to confidence. I always aspired to have an Indo-French project, since my early days and Dr. Yadav was instrumental in my interaction with Prof. P. Dixneuf from U. Rennes, who visited IICT. My association with Dr. C. Bruneau and Prof. Dixneuf resulted in the CEFIPRA project and we were successful in completing it with 'Excellent' rating. This helped us in getting an invitation from CEFIPRA for the second project, which I could successfully complete along with our team, Dr. Suresh Suriseti, IICT and Dr. Mathew Achard, U. Rennes, and Dr. Bruneau. It is joyous to announce that, the student of our first project, Dr. Basker, is now a faculty at IIT, Kanpur. My other French collaboration with Dr. B. Carboni and Dr. F. Berree, under the Indo-French Joint Lab of IICT was equally successful. I was picked up to work on several committees, both academic and administrative. During Dr. Lakshmi Kantham's tenure as Director, I was given the HR, whereby, I could establish Academic Affairs Cell with the support of my colleagues, which is now the Academic Affairs Unit. During this period, I formulated the AcSIR activities with the help of NVS, USN, VJ Rao, R Srinivas and others.

I was nominated by the Institute to undergo training at the LDP-2010 as the 9th batch candidate at Ghaziabad, to groom future leaders. As I was picked up as one of the ten meritorious candidates in my batch, my child like joy was boundless. My exposure at the training helped me in seeing myself as a strong leader. Under OSAI and other activities related to the next generation at IICT, I interacted extensively with many students and scientists, where we dwelt upon the aspects of ethical practices, and value based systems to pursue good science and to become good human-beings.

In 2016, luck favoured me and my Director, Dr. S. Chandrasekhar assigned me a very important project on biomass along with several administrative matters like reorganisation of IICT, skill development and drug discovery program. The project on the biomass conversion into bioethanol to develop 2G technology witnessed a great success in a short period of time it is pride for all of us, that, Shri Y. B. Ramakrishna, Advisor to GoI on Bioenergy, declared it as "IICT Technology for 2G Ethanol" and one of the three Technologies of India. It gave a moral boost to the entire team - Mr. K. Ravindranath, Dr. G. Sheelu, Mr. Satya Ramesh, Dr. Ganesh Kumar, Dr. R. S. Prakasham, K. Chandrasekhar, C. Chandrasekhar and Dr. Usha Deshpande - from Biology, Chemistry, Analytical and Engineering backgrounds. It was not completion of a project, but was the beginning of a new area of research in IICT. Besides, the pre-treated biomass was used by ILRI as an animal feed and found to be exceedingly good compared to all the known pre-treated biomass! This is likely to help the farmers, milk and meat growers alike, financially. I am ever grateful to Dr. Chandrasekhar for his 'parting gift' to me!! I feel honoured and proud of this achievement of IICT, which was possible just because of the untiring 'Team Spirit'.



IICT encouraged me to undertake active basic research along with industrial assignments. On the path to success for the completion of assigned projects and honours I received, I trained 52 students for Ph. D. Some of them are teachers, some are entrepreneurs and many of them are working in industries in India and abroad. It would have not been possible for me to be what I am today professionally and personally, without the support and affection of the leaders of IICT and colleagues of this great Institute and my students.

My association with CSIR-IICT, started from RRL-H and travelled through IICT, under the leaders like Dr. A. V. Rama Rao, Dr. K. V. Raghavan, Dr. J. S. Yadav, Dr. M. Lakshmi Kantham and Dr. S. Chandrasekher, besides Prof. Sidhartha Roy, Director of CSIR-IICB for almost 15 years. I enjoyed working with each one of them and learnt a thing or two for my professional and personal growth. Finally, I can say, the 'mother' IICT gave everything to me, my family, in return to my honest service for its healthy growth.

CSIR-IICT, like young India around 75, has large number of enthusiastic and talented young children to the mother at 74. I humbly request all my young friends, to thrive hard to become achievers and keep our mother healthy. Following Gandhiji's words, "We have enough for everyone", without hassles, develop a great platform for the future generations, that is boosted with perfect systems and ethical practices, and true human values. As we all know, a 'mango' seed will sprout into a 'mango' tree, good deeds will lead to good in you and in the system.

Heartfelt warm wishes to all the IICTians and the GenNex in particular, from Sharma family for Celebrations towards 75th year and beyond on the path to the greatest 100th year. As many of us heard several times from Dr. S. Varadarajan, our former DG, CSIR, 'IICT' should thrive to become 'IIICT' - International IICT! Let's all 'dream' so and move positively forward, remembering Martin Luther King Jr.

DR. K. RAVIKUMAR

CSIR-IICT Service: 1990- 2018

Greeting to Alumnae, Scientists, Staff, Students and Friends.

It is indeed a matter of great pleasure that our Institute CSIR-IICT, a great organization, is celebrating its platinum jubilee. A historical moment! I feel so honoured to be part of such a wonderful organization that truly understands the importance of scientific temper. Our Institute is committed to providing sustainable solutions with high scientific research background, creating a dynamic and cherishing environment for scientist's growth and carrying out research and development that makes a difference- to the field, to industry and to society as a whole. In the past two decades, significant changes in the Institute have led to being recognised as among the India's leading research organizations, particularly in chemical sciences. The R&D programmes on chemicals and pharmaceuticals (generic drugs) at IICT can be regarded as a fine example of productive Lab-Industry interface and almost all the projects are sponsored by the Indian Drug Industry in recognition of the capability and expertise available IICT. In the last decade after the implementation of TRIPS act in 2005, Indian companies started to shift towards innovative research and for discovery of NCEs. To adapt the scenario and support the industry, the focus of IICT is also shifted towards the innovative research in the drug discovery programs while simultaneously continuing its efforts on off-patented products.

The Institute has diversified, with good Ph.D. programmes in disciplines ranging from chemical sciences to environment sciences. My life in the Institute has been a learning opportunity. What I appreciate the most about the Institute is the freedom it offers, and that enables growth. The variety in our Institute and the unity within the variety is a highlight. The strategic planning and leadership qualities provided me with unique opportunities to grow and help me reach my goals. Thanks for this organization to giving me such a wonderful environment. The scene of myself running around in the Institute to be ready, as secretary of the research council of our Institute, so that I could present the report to the RC chairman on time still plays fresh in my mind.

I was passionate about the career and was excited to grow with expanding responsibilities giving me an all round exposure at IICT. I had been fortunate to head my scientific department at the beginning of my career setting up a state of the art facility and established a centre for excellence in X-Ray Crystallography. Our crystallographic centre has constantly supported the progress of several Institutes R & D programs. Further, various pharmaceutical industries in and around Hyderabad prefer to collaborate with a dedicated centre available at the CSIR-IICT for reliability of the data, confidentiality and meeting the delivery deadlines. The X-ray team has extended its expertise help to solve challenges faced during crystallization studies, polymorphic identification, absolute configuration studies, solid form screening, drug formulation and drug discovery programs of the pharmaceutical industry. This has generated significant revenue to the Institute. During my 27 years of experience at IICT, I enjoyed cultivating strong bonds with people and I am glad that the people around me also reciprocated in a similar way, the X-ray team members in particular welcomed my ideas and decisions and made my stay at IICT a memorable one.

I used to think my accomplishments would bring me the most joy in my life, but now I know that it's the moments and memories that I treasure most. The sense of belonging- knowing your bondage with the Institute, feeling the sense of satisfaction- is boundless. I am sure this platinum jubilee year beginning at our Institute, bountiful emotions saturated the air of our campus this morning with a cloud of joy and cheer. The effect of my life at CSIR-IICT is still evident as I quote about Academic Affairs Unit (AAU) practices at IICT every now and then at my present work place. I thank the Almighty for having given me an opportunity to be a part of this great Institute. May the Institute excel in all its forthcoming endeavours.



DR. B. NARSAIAH

CSIR-IICT Service: 1983 – 2018

I feel privileged to express my reflections on the occasion of launching of Platinum Jubilee Celebrations of CSIR-IICT in August 2018 as the Institute is entering into 75th year of its existence.

I have joined in this premier R & D Institute way back in 1983 as Scientist B and grown to the level of Chief Scientist (Scientist G). When I joined first time, I used to see a big poster in each room with a placard of “courtesy does not cost you anything” with a folded hand. During my long journey of 35 years plus three months, I have seen in and out of this organization. Most of the scientists focussing on developing technologies for various products since in those days, there was no R & D facilities available in industry except manufacturing facilities to produce products from readily available technologies. Thus, development for some agrochemicals, drug intermediates was at peak stage and up-scaling of process technology was order of the day. As a parallel activity, basic research was also pursued through Ph.D. students. As time passed, the focus changed from technology development to fundamental research with a slogan that “good science leads to good technology” under the Directorship of Dr. A. V. Rama Rao. As basic research progressed well, many Ph.D. students came in and competition was built day by day. In order to circumvent the competition, the advanced infrastructure in terms of NMR spectroscopy, Chromatography, Network system etc., were established on par with international standards. Based on the progress made in many fields thereby developed national character, and a committee headed by Dr. Abid Hussain renamed this Institute as Indian Institute of Chemical Technology in 1989.

As soon as I joined in CSIR-IICT, I have been assigned to work with late Dr. R. V. Venkataratnam, the then Scientist F (Deputy Director) and a noble soul, with whom I have associated in various R & D projects. Under his stewardship, we have developed technologies for herbicide like Isoproturon, plant growth regulator like Thiadiazuron, C-5 unit for Vitamin A acetate sponsored by Indian industry.

In order to address the Montreal Protocol resolutions of 1987, Government of India became a signatory and decided to develop indigenous and internationally competent technologies for Hydrofluorocarbons (HFCs) widely considered as alternatives to ozone depleting chlorofluorocarbons (CFCs) and Halons as CFCs and Halons being banned world over. This responsibility was assigned to CSIR and CSIR in turn assigned to IICT to develop technologies for HFCs. Under the leadership of Dr. A. V. Rama Rao and Dr. R. Venkataratnam, a full fledged and fully ventilated fluoroorganics laboratory was established in 1990 and formed a group of scientists from Organic Synthesis, Chemical Engineering, Catalysis, Instrumentation Engineering to pursue R & D in Fluoroorganics. Anhydrous Hydrogen Fluoride, which is highly corrosive, toxic and violently reacts with glass, and being one of the crucial raw material for fluorination reactions, an expertise has been developed to handle the same. Reactor systems with material of construction of Monel, Inconel and Hastelloy have been commissioned. As all these product molecules being gases, an analysis lab with Gas Chromatography facilities was established. Thus, the technology for 1,1,1,2-tetrafluoroethane (HFC-134a) which is used in refrigeration and air conditioning was developed from lab scale to semi-commercial level under the sponsorship of M/s. Navin Fluorine International, Surat and M/s. SRF, New Delhi. The innovation made in the technology is patented in India and abroad. Currently, HFC-134a is manufactured in India by M/s. SRF, New Delhi based on IICT technology and is available in Indian market. Similarly, the technology for 2H-Heptafluoropropane (HFC-227ea), used as fire extinguisher also developed from lab scale to pilot scale under the sponsorship of Centre for Fire, Explosives and Environmental Safety (CFEES), DRDO and demonstrated. M/s. GFCL, Ranjit Nagar, Baroda is establishing the facilities to manufacture the same. Further technologies also developed for drug intermediates and future generation refrigerants under the

sponsorship of M/s. Dupont, USA and M/s Chemours, USA. Today, fluoroorganic division is having full fledged facilities for vapour phase fluorination reactions using anhydrous Hydrogen Fluoride and is first of its kind in the country. During my tenure, I have visited Germany three times under CSIR-DAAD exchange of scientists program, South Korea as an international fellow for one year under Brain Pool program, Singapore for instrument training and to Cape Town, South Africa to deliver key note lecture. I have guided seventeen students for the award of Ph.D., and four are working for Ph.D. CSIR-IICT has given me enough energy to perform my duties and also to grow my family in peaceful manner. I have utmost satisfaction by participating in various R & D programs under nation building. This Institute will give a path to many more scientists to nourish their talent and contribute to the growth of India. As translational research being current mandate of CSIR, each young employee of this premier institution should focus and develop several technologies to cater the Indian industry so that India will become self sufficient.

PLATINUM JUBILEE

1944-2018



CSIR - IICT

Touching Lives

CLSIR-RRL-IICT
THE LEADERS AND THE JOURNEY
THROUGH 1944 - 2018





DR. M QURESHI

Director, CLSIR (1944-1947)

The Imperial India, in 1940s constituted the Board of Scientific & Industrial Research (BSIR) to facilitate industrial research. On the suggestion of the Govt. of India, a BSIR was established in Hyderabad in 1942. At the same time CSIR came into existence as an autonomous body registered under the Societies Act. Two years later Central Laboratories for Scientific & Industrial Research (CLSIR) was created to carry out similar functions in Hyderabad State. By the **Firman** dated August 5, 1944, the Nizam directed Government to set up CLSIR at Hyderabad and the appointment of **Dr. Muzaffaruddin Qureshi** as its first Director. The Government Industrial Laboratory, Hyderabad, which was involved in 'scientific help and advice, analytical services, and investigations and research on industrial problems' for over two decades since 1920s, was merged with CLSIR. The Hyderabad BSIR too became a part of CLSIR. After Independence and the merger of Hyderabad with Independent India, CLSIR started working closely with CSIR. A pioneering effort to promote research and provide assistance to small industries also was made by the Hyderabad Government through the creation of Industrial Trust Fund. Many of the large pilot plants set up by the CLSIR were financed by this Fund.



DR. S. HUSSAIN ZAHEER

Director, CLSIR/RRL-H (1948-1962)

Dr. S. Hussain Zaheer was appointed as Director of CLSIR on November 28, 1948. After taking over charge, Dr. Zaheer reoriented the Institute's research focus on Oils & Fats; Coal & Fuels; Heavy Chemicals and Fertilizers; Ceramics; Organic Chemistry, Pharmaceuticals and Drugs; Biochemistry; Physical Chemistry; Chemical Engineering and Operations Research.

CLSIR was formally taken over by the CSIR on April 13, 1956 and was renamed the Regional Research Laboratory, Hyderabad. Thus, RRL-H has the distinction of becoming the first Regional Research Laboratory to be set up by CSIR. Dr. Zaheer recruited scientists and constituted eight committees under the Board of Science and Industrial Research (BSIR) to explore and strengthen the expertise in various areas. The conservative society of Hyderabad could not come in his way to appoint women as scientists, researchers and workers in the lab. He laid the foundation for research management system to meet the enormous challenges ahead in developing new processes and transferring them successfully to the industry. He had foresight to recognize that information was an integral part of the innovative process. He also strongly believed in personal contacts and sharing of knowledge.

A distinctive feature of the CLSIR was its pilot plants which had been set up to upscale the laboratory experiments to a considerable level.

Dr. Zaheer's leadership gave the 'line and direction' as well as an impetus to the activities by his colleagues. The imprint of his personality can still be traced in the lab in the conduct of not only research taken up but also, furniture, building entrance, garden, etc. Dr. Hussain Zaheer was appointed as Director General, CSIR in 1964.



Shri Pandit Jawaharlal Nehru, Hon'ble Prime Minister of India arriving at the inaugural function at the main building of the Institute. Hyderabad CM, Shri B. Ramakrishna, Dr. S. S. Bhatnagar and Dr.S. H. Zaheer are also seen in the picture



Shri Pandit Jawaharlal Nehru, Hon'ble Prime Minister of India inaugurating the main building of the Institute



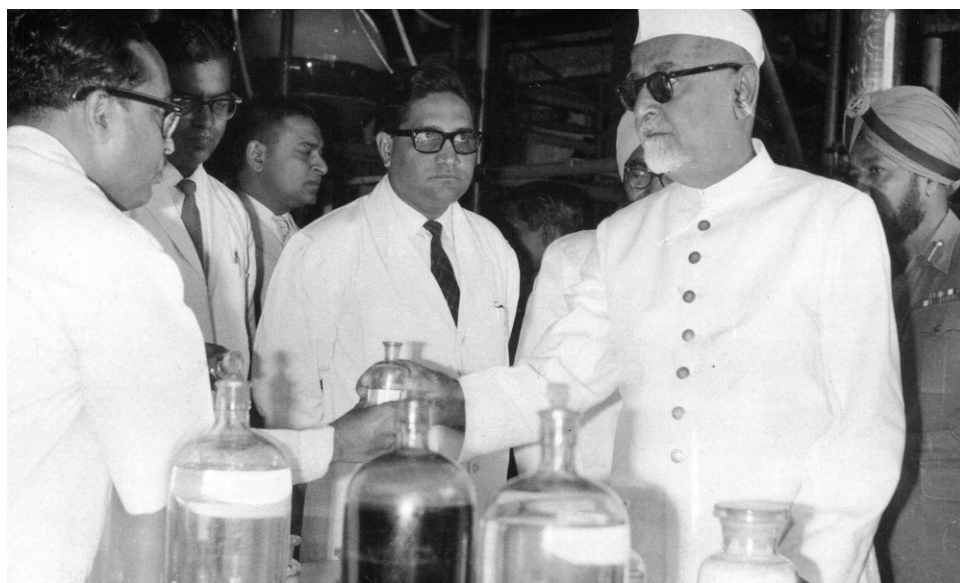
**Shri Pandit Jawaharlal Nehru, Hon'ble Prime Minister of India
visiting the Pilot Plant along with other dignitaries**



**Dr. Hussain Zaheer displaying the products to Dr. Rajendra Prasad,
the then President of India**



**Dr. S. RadhaKrishnan, the then President of India
visiting the Pilot Plant of the Institute**



**Dr. Zakir Hussain, the then President of India
with scientists in a laboratory**



DR. G. S. SIDHU

Director RRL-H (1963-1981)

Dr. G. S. Sidhu succeeded as the Director of RRL-Hyderabad in 1963. He reviewed the policies and plan for the consolidation and expansion of the laboratory enabling it to play its legitimate role in the development of the country. He recognized that dialogue with the industry plays a key role in the innovation process, which in turn helps not only to screen the Institute's research programmes but also serves to bring about a dialogue pertaining to several problems that are to be addressed. He solved a number of problems of transfer of technology. He tried and succeeded in building leadership qualities among his younger colleagues.

A major event during his tenure which brought about structural changes in the Laboratory was the establishment of semi-autonomous "Centre for Cellular and Molecular Biology (CCMB)" on April 1, 1977. The Biochemistry Division of RRL-H formed the nucleus of CCMB and Dr. P. M. Bhargava assumed charge as its Head.

After being at the helm of affairs for close to two decades as Director RRLH, Dr. Sidhu was elevated as Director General CSIR on May 5, 1981.



**Dr. G. S. Sidhu introducing scientists
to Dr. Zail Singh, the then President of India**



**President of India, Dr. G. Zail Singh interacting
with Dr. G. S. Sidhu and other senior scientists**



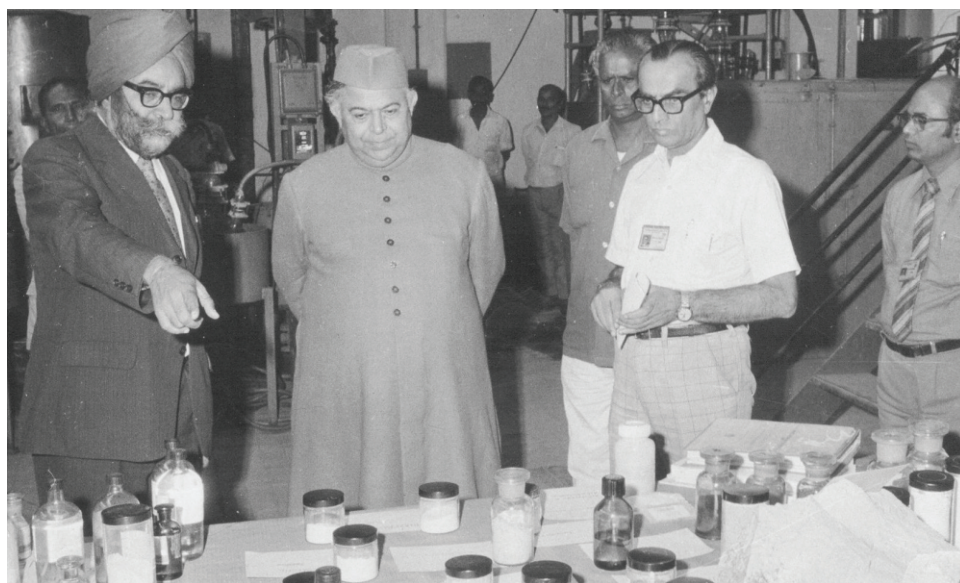
Dr. M. Chenna Reddy, Chief Minister of Andhra Pradesh visited RRLH. Dr.G.S Sidhu explaining the functioning of Pilot Plant



Dr. G.S. Sidhu explaining the activities of the Institute to Shri. A. B. Vajpayee, Chairman of Parliamentary Committee



Prof. Nurul Hassan interacting with Dr. G. S. Sidhu and other scientists



Dr. G. S. Sidhu explaining the activities of Pilot Plant to Shri Nurul Hassan, Vice President of CSIR



DR. G. THYAGARAJAN

Director RRL-H (1981-1985)

Dr. G. Thyagarajan took over as Director of RRL-H on February 2, 1981. During his tenure he reoriented and rescheduled projects in a harmonious manner and at the same time tapered off the unproductive projects. He identified more thrust areas and consolidated them with more attention and input of more resources. Pesticides, design and engineering, active carbons and catalysis were among the areas identified. He strengthened successfully the inter-laboratory well-coordinated programme for development of technologies. He not only pooled the human and materials resources but also ensured the expansion of its horizon to include international agencies thereby calling for strategic planning for commercialization of technologies. The multi-laboratory consultancy provided to ONGC by CSIR, as the prime contractors, together with the TNO of the The Netherlands and Snamprogetti of Italy successfully competed in a global tender. The Bhopal MIC leakage tragedy was entrusted to RRL-H for organizing and coordinating an inter-laboratory and inter-agency work force. The objective of the assignment was to identify the causes of the explosion and consequent leakage from the storage tank and to guide on how to neutralize the remaining MIC stored in other tanks.

Dr. Thyagarajan got recognition for his multifarious talents and committed leadership and for creating new opportunities and venturing into new and unfamiliar areas.



Dr. G. Zail Singh, President of India interacting with scientists



Visit of Shri M Hidayatullah, Vice-President of India



Dr. G.Thyagarajan, Director, with the visiting foreign delegates



Dr. G. Thyagarajan with the Business Development Group of the Institute

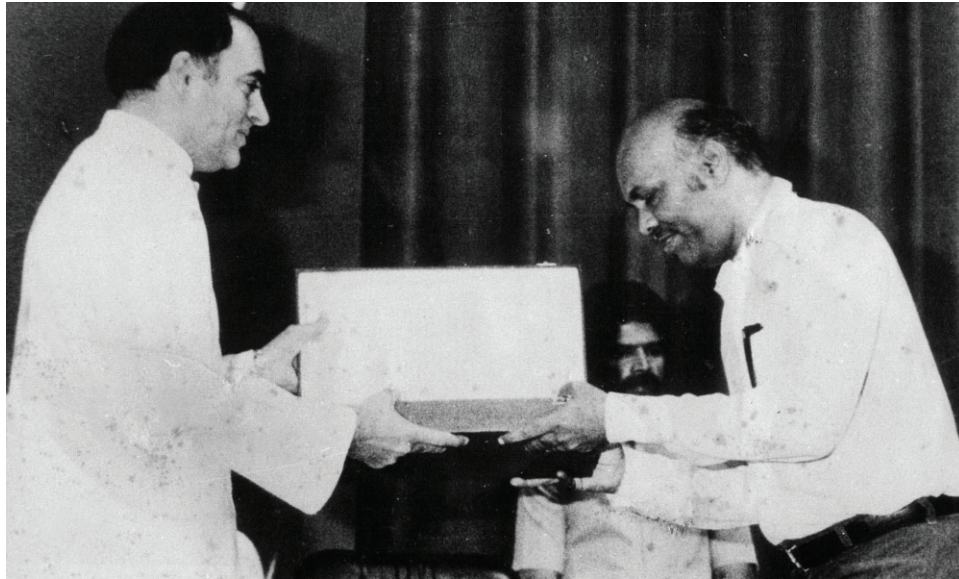


DR. A. V. RAMA RAO

Director, RRL-H/IICT (1985-1995)

Dr. A. V. Rama Rao was appointed as Director RRL-H on July 15, 1985. He acknowledged that the laboratory had considerably grown in stature and size and had made significant contributions in the area of chemistry and chemical technology which may turn into an asset for the chemical industry. However, he stressed upon the need to have a fresh approach. This resulted in dropping of some of the activities, tapering off a few programmers and reinforcement of the important ones with more workforce. With a view to bring in cohesion to the R&D activities of RRL-H, the laboratory was reorganized into major divisions and supporting infrastructural groups to cater to the emerging needs. He established a school of excellence for the synthesis of complex molecules. He focused on technology development by integrating basic science and engineering design to deliver a complete package of technology for commercial exploitations.

The then Prime Minister in his capacity as the President of the CSIR, appointed a committee headed by Shri Abid Hussain in April 1986 to review the functions and structure of CSIR. Based on the Abid Hussain Committee Report of December 31, 1986, RRL-H was rechristened as the Indian Institute of Chemical Technology with effect from April 1, 1989. IICT celebrated its Golden Jubilee in 1994. A monument erected to commemorate IICT's 50 years of fruitful existence was unveiled by the Governor of AP Shri Krishan Kant on August 6, 1994. Shri P. V. Narasimha Rao, the then Prime Minister of India graced the Golden Jubilee Function of IICT and inaugurated the Golden Jubilee Block comprising Discovery Laboratory, Natural Products Laboratory and Catalysis Laboratory.



Director Dr. A. V. Rama Rao receiving award from
Shri Rajiv Gandhi, Prime Minister of India



Vice-President Shri K. R. Narayanan formally rechristened
the laboratory as Indian Institute of Chemical Technology
on 12th July, 1989



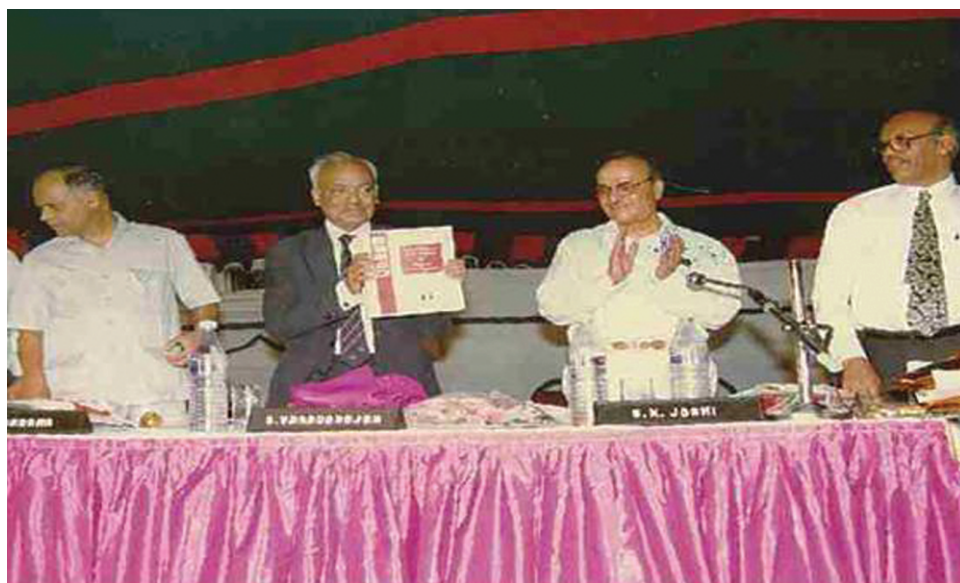
**Shri P. R. Kumaramangalam, Minister visiting IICT
with Dr. S. K. Joshi, Director General and Director Dr. A. V. Rama Rao**



**Dr. A. V. Rama Rao, Director, receiving Padmashri
from Shri R. Venkatraman, Hon'ble President of India**



Hon'ble President, Shri.K R Narayanan along with Dr. A. V. Rama Rao, Director, Dr. A.P. Mitra, Director General at the Seminar "Unveiling New Vistas through Technological Research"



Dr. S. Varadarajan, former DG releasing souvenir during a conference at the Institute.
Dr. S. K. Joshi, DG, Prof. M. M. Sharma, Dr. A. V. Rama Rao, Director and Dr. U. T. Bhale Rao graced the occasion



DR. K. V. RAGHAVAN

Director, IICT (1996-2003)

Dr. K.V. Raghavan was appointed as Director of IICT on January 11, 1996. Dr. Raghavan strengthened the chemical process development and design, reaction engineering groups of IICT. He was very helpful in carrying forward the programmes and projects that had been started in the preceding years. He has nurtured several young and upcoming scientists to become next generation leaders. During his tenure, IICT participated in Contract Research with several companies from abroad. IICT's such endeavor led to the establishment of several CROs in Hyderabad. This helped the Institute to learn newer trends of the work to enhance the skills besides bringing revenues. In his quest to upgrade the aging infrastructure, he availed loan from World Bank. He strengthened the core areas of technologies by establishing a Reaction Engineering Lab. His basic research contributions cover the simulation of complex reactions in fixed bed reactors, hydrodynamics of multiphase reaction systems, enviro-catalysis for clean processing, zeolite catalysis for macromolecules, thermo-chemistry, and kinetics of charge transfer polymerization and modeling of chemical accidents. He strengthened the concept of 'Chemical Safety' and propagated it, where by IICT could establish excellence in the area.



Shri Murali Manohar Joshi, Union Minister for Science & Technology, Governor, Shri C Rangarajan, Shri N. Chandrababu Naidu at the Inauguration of New Wing at I & PC Division with Director, Dr. K. V. Raghavan



Dr. K.V. Raghavan welcoming Shri Surjit Singh Barnala, Governor, Andhra Pradesh



DR. J. S. YADAV

Director, IICT/CSIR-IICT (2003-2012)

Dr. J. S. Yadav took over as Director of IICT on October 1, 2003. IICT celebrated its Diamond Jubilee in August 2004. During the early part of the new millennium IICT had developed a new vision with an aim to emerge as an innovative global R&D organization in the field of Chemical Sciences & Technology. To this end, three National Centres viz. Lipid Research, Semiochemicals and Chemical Biology were created.

Dr.J.S.Yadav has created state-of-art and world class facilities in natural products and new bioactive molecule research through the network and sponsored projects, which placed IICT on the world map as a source of new bioactive molecules especially from the Indian Medicinal Plants. Herbal drug standardization programme and Golden Triangle Partnership Programmes on Ayurvedic Products & Bhasmas have immensely benefited many Ayurvedic industries. Dr.J.S.Yadav was instrumental in establishing state of art facilities for conducting pheromone R&D at IICT and got it recognized as a National Center for pheromone research in India.

As CSIR in its bid to ensure better recognition and visibility, had decided to add the suffix 'CSIR' to all its constituent laboratories during 2010-11. Subsequent to that IICT renamed as CSIR-IICT.

Dr.J.S.Yadav has not only shown his leadership qualities in creating new research activities and facilities but also in the form of Ph.D students and high quality human publications. He was one of the strongest proponent for the establishment of AcSIR, whereby he tried to address the problems faced by the Ph.D students of AcSIR



**Shri Kapil Sibal, Union minister of Science and Technology
and Dr. R. A. Mashelkar, DG, CSIR along with
Dr. J. S. Yadav, Director IICT**



Union Minister, Shri Jairam Ramesh visiting the Bio-Diesel Plant



Shri Prithviraj Chavan, Minister of Science & Technology, Govt. of India releasing a document on “Performance of IICT in the New Millenium”



Dr. J. S. Yadav and Dr. R. B. N. Prasad along with Dr.A. P. J. Abdul Kalam and Shri Prithviraj Chavan, Minister of Science & Technology, Govt. of India



Dr. J. S. Yadav, Director in a brainstorming session with former directors, Dr. A. V. Rama Rao, Dr. G. Thyagarajan and Dr. K. V. Raghavan



Dr. Goverdhan Mehta inaugurating Lipid Pilot Plant



**Governor of A P, Shri E. S. L. Narsimhan,
Director Dr. J. S. Yadav, Dr. Ahmed Kamal, Dr. R.B.N Prasad
at the release of “Opportunities for Synergy & Avenues to Innovate” (OSAI)
after the formal inauguration of Centre of Semiochemicals**



DR. M. LAKSHMI KANTAM

Director, CSIR-IICT (2013-2015)

Dr. M. Lakshmi Kantam became the first woman Director of a CSIR lab in the long history of seven decades of CSIR. She took over as Director of CSIR-IICT on April 9, 2013. Her focus was on developing green processes relevant to Industry. Several technology transfers were affected along with the stress on basic research in the Chemical & Allied Sciences and Engineering. She made notable contributions towards the development of specially designed homogeneous/heterogeneous catalysts for green chemical processes. She was instrumental in the development of several catalysis based technologies by CSIR-IICT. Her best contribution was the revival of Hydrazine Hydrate. The project is on the verge of commercial production level. Besides this, her focus was also on nurturing young talent and creating skilled and professional scientific human resource.

The perseverance, intelligence, talent and overall qualities of women are being exploited to create rich S&T enterprises and capacity building. She believed, "Empowering women through Science and Technology, is about giving them the opportunity to advance themselves and become successful".



Shri. S. Jaipal Reddy, Hon'ble Union Minister for Science & Technology inaugurating CSIR-IICT@70 Celebrations, a Curtain Raiser Ceremony



Celebrating Seven decades of Service to the Nation with Shri M. Venkaiah Naidu, Dr. Jitendra Singh, Hon'ble Minister of State for Science & Technology, Dr. P. S. Ahuja, Director General and other dignitaries



Hon'ble Minister, Dr. Harsh Vardhan interacting with scientists at the Institute along with Dr. M. Lakshmi Kantam, Director, CSIR-IICT, Dr. Ch. Mohan Rao, Director of CCMB



Dr. M. Lakshmi Kantam, Director with Italian Ambassador



Dr. M. Lakshmi Kantam, Director, meeting Air Marshal cadets



Director, Dr. M. Lakshmi Kantam at an event of
“Business Meet” with Oils, Fats & Allied Industries



DR. S. CHANDRASEKHAR

Director, CSIR-IICT (2015 – till date)

Dr. S. Chandrasekhar, assumed charge as the Director of CSIR-IICT on June 14, 2015. Immediately he set out to create an academic ambience in the institute and crafted an entirely new department "**Academic Affairs Unit**" with lecture halls, student lounge and a secretariat dedicated entirely for the student activities. He also started a student festival named **Samyuktha**. Alongside he set translational goals of each department and after thorough churning identified the low hanging fruits of research that have market potential. These projects were initially funded by CSIR-IICT later by the CSIR and are now nearing completion at IICT. As per the **Dehardun Declaration** he reorganized the various departments and clubbed them as per the merits and strengths of the scientists with the redefined goals. Due to these measures, the ECF touched new heights today. He is a staunch believer that "**High Science leads to future technologies**" and motivated the scientific staff to dream big, to excel in high science with a vision on industrial and translational research. During this period an **Ultra Modern New Animal House Facility** has come up.



Prof. K. C. Nicolaou delivered the Platinum Jubilee Lecture and is seen with Dr. S. Chandrasekhar, Director, former directors Dr. A. V. Rama Rao and Dr. J. S. Yadav



Director, Dr. S. Chadrasekhar along with Prof. Vijay P Bhatkar and Prof. Arun Tiwari on the occasion of releasing CSIR-IICT Diamond Jubilee souvenir



School Children visiting “Platinum Jubilee Science Exhibition”



CSIR-IICT, Hyderabad along with Chemical Research Society of India (CRSI) organized the 21st National Symposium in Chemistry was inaugurated by “Bharat Ratna”, Prof. C. N. R. Rao in the presence of Dr. N. Satyamurthy, President, CRSI, Dr. S. Chandrasekhar, Chairperson of this symposium and Director, Dr. S. Chandrasekhar, CSIR-IICT



**Prof. Kurt Wuthrich, Nobel Laureate,
The Scripps Research Institute, USA,
interacting with Scientists at Centre of NMR**



**Shri. A. S. Kiran Kumar, Chairman ISRO
enlightened the participants on the National Technology Day.
Director Dr. S. Chandrasekhar and
former director Dr. A. V. Rama Rao graced the occasion**



**Visit of Prof. Hiroshi Amano, Nobel Laureate in Physics
for the invention of efficient blue light-emitting diodes (LED)**



**Director, Dr. S. Chandrasekhar felicitating
Dr.V. K. Saraswat, former DG of DRDO**



Hon'ble Minister, Shri K. T. Rama Rao, former DG, Dr. R. A. Mashelkar, Director Dr. S. Chandrasekhar interacted at Research & Innovative Circle of Hyderabad (RICH) Program



Senior Scientist Dr. A. G. Rao and Director, Dr. S. Chandrasekhar explaining the installation and functioning of Anaerobic Gas Reactor





