

KV's 60th birthday was very special and unique and probably the first of its kind for any professor at IISc, blended with simplicity and affection. It was a picnic with families of his students over the years and it combined business with pleasure. Almost all students of KV who are scattered in different parts of the country attended the celebration at their own cost and presented their current work and future aspirations.

After his retirement, KV continued his interest in both crystallography and spirituality. Being a voracious reader he kept himself abreast with the current advances in the area and many students from various groups at IISc frequented his house to discuss their work and get some guidance after his visits to the laboratories in IISc got curtailed due to his illness. I am given to understand that he gave several

important directions to students that helped them to publish their work in leading journals. Effectively, he was retired only on paper (as per the rules of the Institute) which happens unfortunately to many scientists in India who remain active and vibrant and particularly in cases like that of KV. The students along with the Department of Organic Chemistry arranged a special symposium to mark his 80th birthday on 28 April 2012. A booklet brought out on this occasion had a biographical sketch on KV and his life written by his first student Sabesan which brought out not just KV's scientific career but an account of his personal life, simplicity and humbleness personified with glory and dignity.

KV with all this was indeed a novice when it came to day-to-day life and in this aspect the support he received from

his wife Meenakshi is unmatched. She singlehandedly managed the entire household and particularly during the last few years of KV where he was physically dependent on her. They made an ideal couple and I must say KV was fortunate in this context.

Venkatesan will carry a message for all scientists from the past, present and future, that is to lead a life with honesty, simplicity and respect for all at the same time being firm and decisive and judgmental.

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R. Jayaraman (1937–2019)

Prof. R. Jayaraman, a scientist and teacher *par excellence* passed away on 13 April 2019. He was an inspiring teacher and an exemplary researcher, a humble human being and a great friend. He always wished Indian science and scientists to be in forefront of world science and worked for the same throughout his life.

Ramamirtha Jayaraman, affectionately called as RJ by his friends and colleagues is perhaps the first one to start *Escherichia coli* genetics laboratory in a State University setup in India. He was born in Burma (now called Myanmar) on 10 October 1937 to Ramamirtham Ayyar and Bragath Kujambaal. He did his schooling in Thiruvavur and obtained B Sc (Chemistry) degree from Kumbakonam Arts and Science College (then affiliated to Madras University). Later, he joined as a research student in the Biology Division of Atomic Energy Establishment, Trombay (now BARC) and earned M Sc (Biochemistry) degree by research from Mumbai University. Subsequently, after spending a brief time at CIBA Research Centre, Mumbai and Maulana Azad Medical College (as a demonstrator) in Delhi, he joined Tufts University, School of Medicine, Boston, USA and carried out his Ph D work

under the guidance of Edward Goldberg (1965–1970). Later, he moved to Harvard Biological Laboratories, Cambridge, MA, USA as a Damon Runyon Memorial Post-doctoral fellow and worked under the supervision of the Nobel Laureate James D. Watson (1970–1972). He then joined Tata Institute of



Fundamental Research (TIFR), Bombay and worked as a Fellow during 1972–1974. Later, he joined as a Reader in the Department of Molecular Biology, School of Biological Sciences (SBS), Madurai Kamaraj University (MKU) upon invitation by the then Co-ordinator

S. Krishnaswamy. He retired from service as Professor and Head in Molecular Biology and Chairperson of School of Biological Sciences in 1988 and continued his research work in the same institution in various capacities. He was an INSA Senior Scientist and INSA Honorary Scientist at MKU till 2003 and Guest Faculty at IIT-Madras (2006–2007).

Jayaraman's research was mainly on transcription and its regulation in *E. coli*. At Tufts, he developed a genetic assay for gene-specific mRNAs of Bacteriophage T4 which was well applauded and quoted in the text books and monographs of that period. At Harvard, he demonstrated that some genes of phage T4 could be expressed by read-through mechanism and some others require specific initiation factor(s). At TIFR, his studies revealed that *E. coli* RNA polymerase exist in heterogeneous forms *in vivo* by associating with different proteins (different forms exhibit different physical and catalytic properties). He was perhaps the earliest to show the role of accessory transcription factors in *E. coli*. Though most of his work prior to coming to School of Biological Sciences was related to biochemical studies pertaining to transcription regulation in T4 phage infected cells of *E. coli*, after joining SBS,

he switched over to Molecular Genetics aspects of transcription control and DNA repair in *E. coli*. In a recent interview for the documentary on SBS, he had clearly indicated that, with the facilities available in the then SBS, MKU he has to opt for Genetics over Biochemistry. But this in no way affected his scientific rigour. His group isolated three temperature sensitive (Ts) transcription defective mutants termed as *fit* (factor involved in transcription). Detailed analyses of *fit* mutants lead to the identification, genetic mapping and characterization of two genes (*fitA* and *fitB*) whose products are expected to function as accessory transcription factors. Later, molecular analyses revealed that FitA is the same as PheS and FitB could be the same as PheT and it is postulated that the subunits of phenyl-alanyl tRNA synthetase could function as accessory transcription factors also (Fit). He was awarded with Shanti Swarup Bhatnagar Award (1982) for his pioneering work in regulation of transcription in *E. coli*. He also worked on origin of mutations during stationary phase and showed that leakiness of mutant alleles determines their susceptibility to reversion under selection pressure. He had trained 11 Ph D students during his research career.

RJ is recognized as a leading bacterial geneticist of the country. He was an exemplary teacher and perhaps the first one

to start teaching 'Bacterial Molecular Genetics' in a state University set-up like Madurai Kamaraj University. His lectures were simple yet powerful which made students understand the complex genetics in a better way. All students had admiration and fascination towards his way of teaching and his lectures will linger forever in the minds of each of them.

He served in several Project Advisory Committees of CSIR, DST and DBT. He also served in the Editorial Boards of several journals and was in the Sectional Committees of the Science Academies. Besides Shanti Swarup Bhatnagar Award, he received several other awards and honours. Notable among them are: UGC National Professorship; Dr Radhakrishnan Award (Best Teacher Award) of the Tamil Nadu Government; Professor G. N. Ramachandran 60th Birthday Commemoration Medal (1997) of INSA; and J. C. Ray Memorial Medal of IICB, Kolkata. He was a Fellow of the Indian Academy of Sciences (Bangalore) and the Indian National Science Academy (Delhi).

He was a dynamic person with humanity and good sense of humour. He had developed interest in all fields of science and had affection towards Tamil literature. His library collections include books ranging from basic science to logistics to psychology and literature. He was

never away from science until his last breath. He kept himself updated with research articles and has written review articles even when he was at home. Despite his health issues, he attended the International Conference organized by SBS, MKU just a month before his death, to motivate young students and discuss science with fellow researchers.

One of the writers of this obituary (KD) followed the footsteps of RJ to work on *E. coli*-T4 phage restriction modification system as a postdoc at Eddie's lab in Boston. When RJ came to Boston as a visiting Professor for a year, he showed his deep sense of doing serious science. He is a constant source of encouragement and sincere in all his advice. He will be missed by everyone who came in contact with him. A remarkable human being to emulate. His wife Kamakshi helped him to do his science without the botheration of day-to-day trivialities.

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