

Hiriyakkanavar Junjappa (1936–2021)

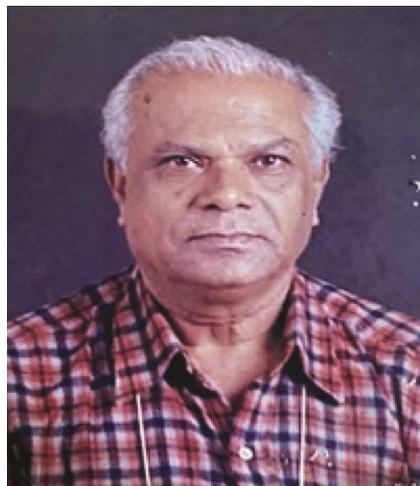
Professor Hiriyakkanavar Junjappa, a distinguished organic chemist and an acclaimed teacher who contributed immensely to the growth and development of research in heterocyclic chemistry in India, passed away on 16 November 2021 at the age of 85 years in Bengaluru.

Junjappa was born on 23 May 1936 in a small town in rural Karnataka. He takes his name after a cultural hero and a character from the epics in South Karnataka, who fought evil to protect his people.

Junjappa had his early education in Lamington High School, Hubli and Municipal High School, Haveri, and passed SSLC in 1954. He obtained his B.Sc. Chemistry (Hons) degree in 1958 from Lingaraj College, Belgaum and his M.Sc. degree from Karnatak University, Dharwad (1960). He continued research in the same University in the chemistry of indoles under the tutelage of Siddappa and obtained his Ph.D. degree in 1964. He worked as a postdoctoral fellow in the Department of Chemistry, IIT Kanpur with M. V. George (1965–67; cycloaddition reaction of acetylenic esters); at Ohio State University, Columbus, Ohio, USA, with M. S. Newman (1967–69; development of reagents for resolution of optical antipodes) and at Texas Tech University, Lubbock, Texas, USA, with H. J. Shine (1969–70; spectroscopic studies of cation radicals). He returned to India as a CSIR Pool Officer in 1970 to Central Drug Research Institute (CDRI), Lucknow, and was subsequently appointed to the post of Scientist B in the Medicinal Chemistry Division of CDRI.

The first major turning point in Junjappa's life happened in 1971. It was during his stay in CDRI that he got married to his colleague Ila Bhatnagar, who also became an illustrious professor of organic chemistry. Junjappa was at IIT Kanpur as a postdoctoral fellow when Ila Bhatnagar was a doctoral student under George. Their relationship was understated and mostly unknown to even their close colleagues in those days. Therefore, their decision to marry surprised many. Ila Bhatnagar herself wrote in an article a few years ago about their marriage and their research careers. 'Such south–north marriages were not common at that time; it was a conscious decision on my part as a marriage of two professionals. Organic chemistry has remained the biggest binding force be-

tween us throughout our lives! We started our careers as a husband–wife team. Ila–Junjappa is better known in chemistry circles than either Ila or Junjappa!'



The year 1976 proved to be another turning point in Junjappa's career when he moved to the newly established Central University in Meghalaya – North Eastern Hill University, Shillong (NEHU) as the Founder Head to start the new Department of Chemistry. Building a new department and pursuing research in a remote part of the country was a challenging and unenviable task for the husband/wife team. Ila Bhatnagar wrote about their experiences at NEHU in one of her articles. 'NEHU area was then a forest with no research or science culture. However, this did not diminish our spirit and after three to four years of hard work, we built one of the best chemistry departments of the country with a state-of-the-art laboratory, library and instrumentation facilities. Those were the most productive and challenging research years (1980–1990) with publication of several breakthrough papers in heterocyclic chemistry. Despite several geographical disadvantages of Shillong, its scenic beauty and people enriched our lives.'

Not only did they set up one of the finest chemistry departments in the country, but within a short period of time managed to bring NEHU in the international chemistry map. This was indeed a most remarkable achievement.

Junjappa continued his vigorous research in NEHU till his retirement (1998). He was an Emeritus Scientist at the De-

partment of Chemistry, IIT Kanpur (1998–2001), finally moving to Bengaluru to establish the Bioorganic and Applied Materials Ltd, a custom synthesis company, as its Founder Director (2002–05). In 2010, he joined Reva Institute of Technology and Management, Bengaluru as a Research Professor and continued to mentor young scientists well into his last days.

Junjappa's significant contributions have been mainly in the area of synthetic organic chemistry/heterocyclic chemistry. He developed powerful synthetic routes based on polarized ketene dithioacetals, a class of versatile building blocks, easily accessible from a wide range of active methylene compounds. He also developed several general synthetic methodologies for a large variety of biologically important five- and six-membered heterocycles. He proposed a new method for regio-specific construction of substituted and fused aromatic rings from easily accessible acyclic precursors. This reaction, now widely known as 'Junjappa–Ila (JI) aromatic and heteroaromatic annulation' provides new, general, regio-specific routes for the construction of a large variety of substituted and fused polycyclic aromatic hydrocarbons like benzene, naphthalene, phenanthrene, anthracene and their benzo derivatives.

Junjappa brought to bear in his work the intuitive powers of a synthetic organic chemist trained in the classical mould and the mechanistic insights of a physical organic chemist, an area to which he was exposed during his postdoctoral years. He was thus able to combine both beauty and logic in pursuit of his research in organic chemistry. He was also a consummate experimentalist on the bench and during his stay at IIT Kanpur was the 'go-to-man' for many fellow students to solve vexing issues in synthesis, product isolation and purification.

Junjappa mentored over 60 students for their Ph.D. degrees in chemistry and published more than 250 research papers in international journals of repute. He was an elected Fellow of the Indian Academy of Sciences, Bengaluru and the Indian National Science Academy, New Delhi. During 1999, he was Visiting Professor at Iberdrola National Foundation, Spain. The Chemical Research Society of India (CRSI) honoured him with the Lifetime Achievement Award (Gold Medal) in 2019.

PERSONAL NEWS

Passion for organic chemistry, hard work, perseverance, aiming for excellence and perfection were the hallmarks of Junjappa's academic life. It is only when you start interacting closely with him you realize that you are in the presence of a scholar. He was well read and well versed in history, religion, politics, ayurveda, books, movies, etc. He was able to keep people enthralled with his discourse on any of these topics. As husband and wife, Ila and Junjappa were familiar faces and a permanent fixture in almost all the national symposia and meetings of the academies for several years. The presence of this power-couple in conferences and symposia will

be sorely missed by their many friends and well-wishers.

Junjappa's demise is a great loss to the organic chemistry community, and to the galaxy of students and co-workers that he loved and cherished. Those of us who have been fortunate enough to know and work with him have lost a dear friend.

Ila Bhatnagar acknowledges his role in her life thus: 'My husband was highly cooperative in grooming me as an independent and professional woman.' Both the distinguished organic chemists provided ample support to each other and closely collaborated in their research endeavours. Their chemistry, both in the laboratory and

outside was eclectic, complementing each other beautifully. Junjappa leaves behind his wife and a daughter.

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