



First KIA Laureate Fundamental Research



- ◆ **Researcher:** Prof. Jhillu Singh Yadav
- ◆ **Nationality:** Indian
- ◆ **Date of birth:** 1950
- ◆ **Position:** Director
- ◆ **Scientific affiliation:** Indian Institute of Chemical Technology, Hyderabad, India

Project title: Synthesis of complex natural products of biological relevance

Abstract: Prof. Yadav is specialized in asymmetric synthesis to create new chiral centers such as chiral allyl and propargyl alcohols and utilized in the total synthesis of arachidonic acid derivatives and their metabolites. His passion for preserving environment prompted him to initiate several green chemistry programmes involving metal catalysis and ionic liquids. The introduction of five asymmetric centers in one single step from prochiral 2,4-dimethyl-3-hydroxy-9-oxanonane through desymmetrization by chiral hydroboration has been elegantly accomplished by him to synthesize complex natural products like calcimycin, rutinomycin, bryostatin, rifamycin, discodermolide, methynolide and scytophycin, which have antitumor, antituberculosis and antifungal activities. Prof. Yadav has successfully developed cost effective technologies for Taxol, Camptothecin, Diltiazem, Ondansetron, Tamoxifen, Carbidopa, cetirizine, pyrazinamide and Mitoxantrone.

He is the principal architect of the Integrated pest management programmes using insect pheromones as tools in IPM. He created the National Center for pheromone research at IICT and synthesized pheromone components at an affordable price to the farming community for the control of pests of cotton, rice, groundnut sugarcane, brinjal etc.

Biography: Prof. Jhillu Singh Yadav, Director, Indian Institute of Chemical Technology (IICT), Hyderabad has obtained his Doctorate in 1976, from India. He was a Post doc at Rice University, Houston & University of Wisconsin, Madison in USA. In 1981, he joined National Chemical Laboratory (NCL) Pune, in India and subsequently in 1986, he moved to IICT, Hyderabad, the leading Chemical laboratories of CSIR, India. In 1989, he was elevated as Head of the Department of Organic Division I and in October, 2003 he has been appointed as the Director.

In a span of 34 years of research career, Prof. Yadav has been able to carry out extensive basic and applied research investigations in the Synthesis of over 50 Complex Natural Products of Biological relevance. Prof. Yadav is specialized in the state of art Asymmetric Synthesis to create new chiral centers and he extensively utilized them very effectively in the Synthesis of Complex organic molecules having self-defensive properties against rice-blast disease, hypersensitive metabolites and antifungal agents in a highly innovative manner.

Prof. Yadav's impeccable instinct made him to foresee the versatility of Insect sex pheromones in Indian agro-system. He has pioneered the alternative eco-friendly and environmentally safe pest control technologies in India through the application of Insect pheromones as major tools in Integrated Pest Management (IPM) for better and cleaner agro-products.

More than hundred students have received their Ph.D degrees under his able guidance. To his credit, he has 47 patents, more than 730 scientific publications and over 9000 citations.

Prof. Yadav is a fellow of all reputed academies of India and received numerous national awards including prestigious S.S.Bhatnagar Award. He is also a fellow of Third World Academy of Sciences.