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'Indian scientists need to research on solutions to issues affecting them'



Post his intermediate studies after matriculation, his age factor didn't allow him to pursue his passion in medicine, as 17 years of age was the admission requirement.

He then deliberately chose science to be his career path. Fortunate enough to have inspiring friends and excellent teachers around, a fiery spark was lit within his spirit to pursue research in fundamental sciences.

"Those years changed my outlook towards studies and I got deeply involved in chemistry and pursued it, rather, still doing so, with great passion," says the 51-year-old chief scientist and head of natural products chemistry division at the CSIR Indian Institute of Chemical Technology (IICT), in Hyderabad.

He joined IICT way back in 1986 as a junior research fellow, and became the chief scientist at the institute in 2010. He was also the winner of the prestigious Infosys Prize in 2014 in Physical Sciences.

Dr Chandrasekhar recently tasted another phenomenal milestone. This time, being appointed as the director of the same institute, IICT.

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His award-winning research is focused on three major areas including synthesis of natural products of biological importance, developing greener technologies for the industry, and also developing patent non-infringing routes for drug molecules.

He and his group currently works on the synthesis of complex and scarce natural products of marine origin, which has the potential to become blockbuster drugs in the future.

"We are also working on to make the present drug molecules processes more greener by reducing pollution, caused by the use of metal catalysts and organic solvents. I have developed polyethyleneglycol (PEG) as a benign solvent which can be recycled, and reduces the use of metals -- which are used as catalysts, by recycling them," he adds.

The synthetic processes developed by him and his group are based on reducing the number of steps and reagents, and the time taken for the reaction.

"Thus, the impact is in saving expenditure and protecting the environment. This makes affordable health for all a reality," Dr Chandrasekhar points.

As of now, some of the pharma industry representatives have approached him for the processes developed for the synthesis of drug molecules using greener technologies and patent non-infringing routes.

"Negotiations are on for the technology transfer," he comments.

Speaking about scientific research in India, he expresses that facilities in India are on par with facilities anywhere else in the world.

"What we need is people with an open mind to explore new areas of science. Our schools and colleges should nurture the inquisitive nature of students, and encourage them to take up science, based on their aptitudes," he suggests.

Dr Chandrasekhar defends that science can never be boring. "It is the way it is presented to students that makes it boring. Science is everywhere and is reflected in everything we do. Once students understand this, they will be fascinated by scientific research that is going on and will be inclined to take up a career in science," opines Dr Chandrasekhar, who loves to read chemistry journals and visiting forests with his son who is a wildlife photographer.

According to him, there are no sure shot formulas to become a successful scientist.

"Each one has his or her own way of carrying out research. The subtle difference between a successful and an unsuccessful scientist is recognizing opportunities at the right time. A successful scientist takes every opportunity to find a new area of research, and thereby reinvents each and every time," he voices.

Dr Chandrasekhar feels that plenty of funds are available for scientific research in India.

"I have a difference of opinion here. It is not that funds are not available, but it is the lack of clarity in planning research, which is a bigger challenge. There are several government agencies which fund properly planned research projects," he stresses.

To his credit, he has over 240 publications and 5000 citations in multiple national and international journals.

He received his bachelor's, master's and PhD degrees from Osmania University in Hyderabad.

He then pursued his post-doctoral research at the UT Southwestern Medical Center, Dallas, USA, with Prof J R Falck.

"There is a big difference in research activities done in India and the Western countries," the scientist remarks.

"The academicians in the West choose a problem and define it along with the solutions, and work towards achieving them. In India, many researchers choose problems because bigger groups in the West are working in those areas. Indians need to identify a problem which affects them and try to find a solution to it," he ends.