

Fern scientist

Meet Dr. Smitha Hegde who studies ferns, one of nature's mysteries



LIFE OF SCIENCE

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Ferns are a group of plants comprising over 13,000 species. Each species has its own set of distinct features but what ties them together is that they all lack seeds, flowers and fruits. They reproduce through spores. Ferns were one of the first plants to evolve on land. They have been in existence for over 350 million years and remain abundant to date. One of the areas with a rich biodiversity of ferns in India is the Western Ghats. A specialist in the study of ferns in this region is Dr. Smitha Hegde, currently Professor at Nitte University in Mangaluru.

Field

Smitha is a pteridologist, a scientist who studies ferns. The main reason ferns fascinate scientists like Smitha is the fact that they have lasted so long in evolutionary history and across all kinds of habitats. Despite drastic changes to climate and habitats, somehow ferns have persevered, and how!

They have managed to thrive even in urban conditions, to a degree that environmentalists worry about them taking over other vegetation that is thought to be more ecologically important. The genomes of ferns hold many mysteries – one of Smitha's students is investigating why some ferns have retained genes



Expert pteridologist.

responsible for flowering despite not having flowers.

Research

Smitha is an expert in ferns of the Western Ghats. In the past couple of years, she was involved in a project to do with ferns in the Kudremukh forest in Karnataka. Kudremukh is an ecologically sensitive area and a habitat for valuable species like the endangered lion-tailed macaque. A fern species called *Pteridium revolutum* was wrecking havoc.

Ferns provide no nutrition for animals like deer which graze in the forest. Moreover, they are toxic. Any harm to medium-sized herbivores like deer will affect animals higher up the food chain, including tigers. Smitha conducts tests on soil samples taken from across sites in the forest. She has obtained clues about what kinds of conditions *P. revolutum* likes. The more she understands, the better the chances are of designing

an intervention measure to check its uncontrolled growth.

Career growth

After an M.Sc degree from Mumbai, Smitha joined St. Aloysius College in Mangaluru as a lab assistant where she spent the early years of her career helping Ph.D scholars with their equipment and typing their theses under the guidance of Rev. Fr. Dr. Leo D'Souza, Director of Research, Laboratory of Applied Biology, who encouraged her to take up interdisciplinary research. She ended up registering for a Ph.D in Mangalore University. Since then she has worked as research scholar and lecturer at the same college, eventually rising to associate professor. In 2017, she moved to Nitte University Center for Science Education and Research in Mangaluru.

The author is a science writer and co-founder of the Life of Science project. To know more about women scientists of India and their research, visit www.thelifeofscience.com.