

## Western Ghats reveal world's smallest land fern

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Tiny flora: Malvi's adder's-tongue fern. Special Arrangement

### **The Malvi's adder's-tongue fern is just one centimetre tall**

Indian researchers have discovered the world's smallest land fern hiding in the Ahwa forests of the Western Ghats in Gujarat's Dang district. According to a recent study in *Scientific Reports*, an international journal that publishes multidisciplinary research, the fingernail-sized fern belongs to a group known as the adder's-tongue ferns, named after their resemblance to a snake's tongue.

The size of the new Malvi's adder's-tongue fern *Ophioglossum malviae* – just one centimetre – is probably the reason why it remained hidden all along, said researcher Mitesh Patel of the

Department of Biosciences at Surat's Veer Narmad South Gujarat University, who stumbled across the plant during a botanical expedition in 2016.

According to Mr. Patel, he was lying on his stomach and looking for other small *Ophioglossum* ferns in the Ahwa forest division when he came across the distinct fern.

### **Complex features**

Taking it back to the lab, Mr. Patel and his colleagues studied its morphology in detail to find that it differed from similar ferns in not just size (the most similar adder's-tongue fern is 10 cm tall) but other complex fern features too.

A look at the plant's minuscule seeds (called spores) under a powerful electron microscope revealed it had a unique thick outer layer which similar species lacked.

The researchers also analysed the plant's DNA and found it to vary enough from its relatives to call it a new species.

Initial observations suggest that the ferns are seasonal and grow with the first monsoon rains, said Mr. Patel. "They last only for a few months and new plants are born through their spores next year," he pointed out.

The ferns are not very common even in the locality they are found in.

In fact, the researchers uncovered only 12 of these plants in the Ahwa forest division, growing alongside mosses in grasslands near Jakhana village. Since locals use the grasslands as a burial ground, conserving the species is crucial, added Mr. Patel.

"It is fascinating that the fern has been found from one of the drier tracts of the Ghats," said T. V. Ramachandra, Senior Scientist, Energy & Wetlands Research Group at CES of Bengaluru's Indian Institute of Science, who was not involved in the study.

"This also highlights the need for more field surveys across the Ghats, before many such unexplored patches are destroyed," the scientist said.