



A NOTE ON AN ABNORMAL SPIKE OF *OPHIOGLOSSUM RETICULATUM* L.

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Branched spike in a plant of *Ophioglossum reticulatum* L. is described. The abnormal feature is considered as atavistic suggesting *Ophioglossum* as advance over other genera in the family.

Key words: Atavistic, *Ophioglossum*, Ophioglossaceae.

Ophioglossum (Adder's Tongue) is characterized by the presence of a massive stock, (generally) simple leaf and simple spike on the margins of which are embedded the sporangia but the apex is barren. In *O. reticulatum* L., the fertile stipe is as long as the common stipe and the trophophyll is often broadly ovate, cordate (Kholia 1992, Khullar 1994). Generally, the spike in this species is 30-40 mm long with 35-40 pairs of sporangia on either side of the axis and about 2-3 mm infertile apex. From a natural population at Lachher (15 km North to Pithoragarh town), the first author collected a plant in which a pair of lateral branches similar in constitution to that of main fertile spike is formed at the base of the spike. The 20 mm long spike is with 1.5 mm long barren apex (Fig.1). The basal lateral branches are 9 and 11 mm long bearing 8 and 14 pairs of sporangia respectively, the barren apices being 1.0 mm long.

Various types of abnormalities in the spike of *O. vulgatum* have been figured by Bower (1926) e.g. emergence of three spikes from the apex of common stipe, presence of branched bases of spike etc. but attributed no significance to these features.

In the absence of fossil records, the phylogenetic relationships of these ferns with



Figure 1. A plant of *O. reticulatum* L. with abnormal spike (The arrows represent presence of basal pair of additional spikelets, scale bar= 1.5 cm)

other groups are not traceable and are often treated as isolated. However, recent molecular studies suggest their closeness with whisk ferns (Schuettpetz and Pryer 2008). As to the intra familial relationships are concerned, *Botrychium* and *Helminthostachys* are considered as primitive and *Ophioglossum* as relatively advance (Bower 1926, Eames 1936) but reduced in somatic constitution i.e. the single leaf is simple and the spike is usually unbranched. Studies based on *rbcl* and *trnl-F* plastid DNA sequence also revealed two clades within Ophioglossaceae: botrychiodeae (for *Helminthostachys* and *Botrychium*) and ophioglossoid clade (for *Ophioglossum* Hauk *et al.* 2003).

Presence of a pair of lateral fertile branches at the base of the spike similar to that of the main spike seems to be reversed to ancestral character. Branched spike is characteristic of the species

of *Botrychium*. Atavism appears occasionally in few characters while the other features remain unchanged.

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