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Original Article

Plantlet formation and Spore Production - A Rare coincidence in *Adiantum lunulatum* Burm. (Adiantaceae - Pteridophyta) of Uttar Pradesh, India.

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Abstract

Adiantum lunulatum is a common terrestrial fern. The plantlets and spores were observed in the same plant of the species and this is the first report of this for *A. lunulatum.* This is the first report of this species from Uttar Pradesh.
Keywords: *Adiantum lunulatum*, Adiantaceae, plantlets, Uttar Pradesh, India,

The genus of *Adiantum* belongs to the family Adiantaceae, which is over 200 species spread across both hemispheres. *Adiantum lunulatum* is a common terrestrial fern. The plantlets and spores were observed in the same plant of the species and this is the first report of this for *A. lunulatum.* This is the first report of this species from Uttar Pradesh.

Ferns exhibit a variety of reproductive mechanism. Sexual and vegetative reproduction occurs in the same species. Most ferns have vegetative reproduction as a means to increase in number. In a number of ferns vegetative reproduction is the only means of reproduction and it can be considered as an obligate apomixis. As a general rule this occurs in sterile hybrids and in species under stress. Many of the vegetative forms are creeping, branching rhizome, root buds, stolons, bulbils (Walker 1966) and the plantlets (Koptur and Mary,1993).

Generally ferns like *Adiantum*, *Asplenium*, *Camptosorus*, *Diplazium*, *Tectaria* and *Woodwaria* (Page,1979) are known to produce plantlets on the sporophyte frond and these plantlets directly grow into new young sporophytes. This phenomenon is very common in *Asplenium* and about 30% of ferns of Eastern Africa have this property (Faden, 1973). During the recent exploration of the Kusmi jungle of Gorakhpur (Fig. 1) district of Uttar Pradesh, a few specimens of *Adiantum lunulatum* (Fig. 2) was collected and were found to be having plantlets and spores. This is the first report of this species from Uttar Pradesh. Jamir and Rao (1988) have reported rooting at the apex of *A. lunulatum*. In south India, where the plants are found to be common do not exhibit such plantlet formation (Manickam and Irudayara,1992). Beddome (1864) has reported that the rachis of this plant extends beyond the pinna and is proliferous.

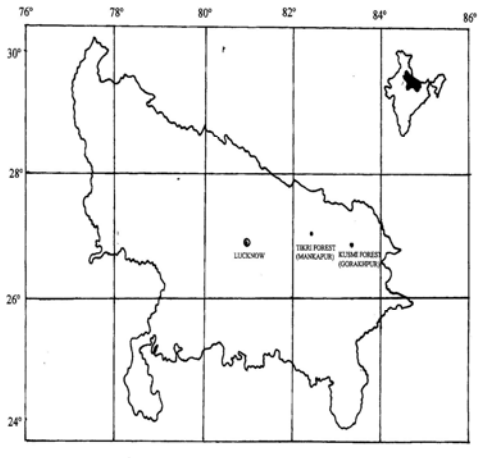

Fig.1: Map of the study area

The reason for such occurrence could be stress factor as given forth by Walker (1979). Walker,(1979) is of the view that tolerance of the species tends to vary in different habitats. *A. lunulatum* is a terrestrial species found mostly along the fully exposed or partially exposed places. They have also been collected from the walls of the houses. The spores of those plants having both plantlets and the spores have been found to be normal without any abnormality. The presence of plantlets has been reported but the presence of spores and the plantlets in the same plant of *A.lunulatum* has not been reported so far. This is a common species in Kusmi jungle of Gorakhpur and it has also been collected from the fully exposed walls of the houses. Presence of plantlets in fertile fronds could be because of the stress factor as viewed by Walker (1979).

Specimens observed:

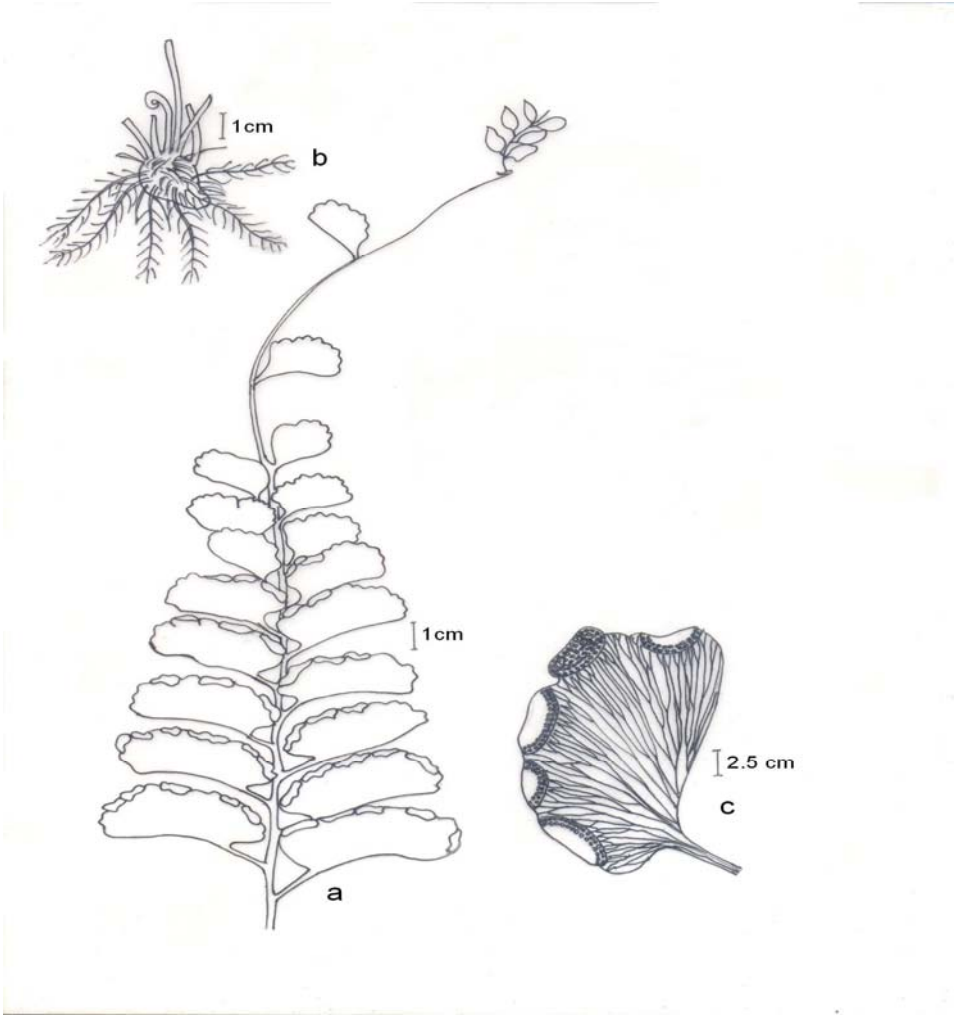

Fig. 2: Legends

a. Lamina apex with the plantlet; b. Rhizome; c. Pinna enlarged showing the sori and the venation pattern

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