

***Adiantum aethiopicum* L. and *Lygodium flexuosum* (Linn.) Swartz: Two New Records of Rare Ferns from Uttar Pradesh**

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Abstract

Adiantum aethiopicum L. and *Lygodium flexuosum* (Linn.) Swartz are two rare ferns collected for the first time from the foot hills of Himalayas in Uttar Pradesh

Key Words: *Adiantum*, *Lygodium*, New records, Himalayas, Uttar Pradesh

Introduction

Twenty-five species of *Adiantum* occur in India (Dixit, 1984; Khullar, 1994; Borthakur *et al.*, 2001), 10 species are reported to be present in South India (Dixit, 1984, Manickam and Irudayaraj, 1992) and nine species in Assam (Borthakur *et al.*, 2001). Chandra, (2000) has reported about 26 species from India. The

report of *Adiantum aethiopicum* which is widely considered being very rare in India, is first for Uttar Pradesh. *A. aethiopicum* has been so far reported only from a few localities like Bihar, Assam, Darjeeling and Tamil Nadu (Bir and Verma, 2010). The genus *Lygodium* is represented by 10 species in India (Dixit, 1984), 2 from South India (Manickam and Irudayaraj 1992) and in Uttar Pradesh so far only species is reported (Chandra, 2000). The report of *Lygodium flexosum* is new to Uttar Pradesh. Both the species were collected from Kusmi forest and Tikri forest of Eastern Uttar Pradesh. Eastern Uttar Pradesh (Fig.1) is present at the foot hills of the Himalayas and is situated between $23^{\circ} 52' N$ and $31^{\circ} 28' N$ Latitudes and $77^{\circ} 30' E$ and $84^{\circ} 39' E$ Longitude.

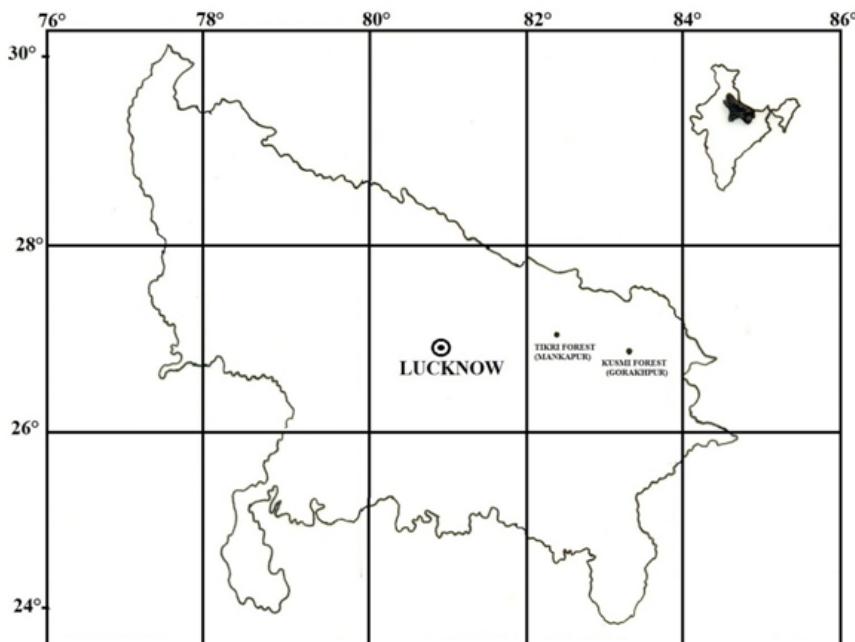


Fig. 1: Map of the study area

Description

Adiantum aethiopicum L. Syst. Nat.(ed. X) 2: 1329 (1759); Beddome, Ferns S. India, t.5 (1864); Handb. Ferns Br. India, 86 (1883); Manickam, Fern Fl. Plani hills, 38 (1986).

Rhizome long creeping, much branched, more or less 3mm thick, covered by scales. Scales falcate, acuminate, ovate at base, up to 5x1mm, bearing spreading hairs at the edges, glossy, brownish. Stipes tufted. Scaly at the base, naked upward, up to 30 cm long, dark brown. Glossy. Lamina bipinnate, deltoid, upto 35x25 cm, basal primary pinnae up to 4cm apart up to 13x8 cm, basal secondary pinnae up to 1.5 cm apart up to 4x3 cm, tertiary pinnae with two to four pinnules, all pinnae terminated by a pinnule larger than the lateral ones; pinnule suborbicular, fan shaped, lobed half way to the base, largest 2 cm across, base cuneate or rounded, entire, non soral margin crenulated, texture herbaceous, pellucid; lower surface slightly glaucous; veins dichotomously branched, free. Sori in marginal notches, up to 2 x 1 mm, reinform. Spores trilete, smooth.

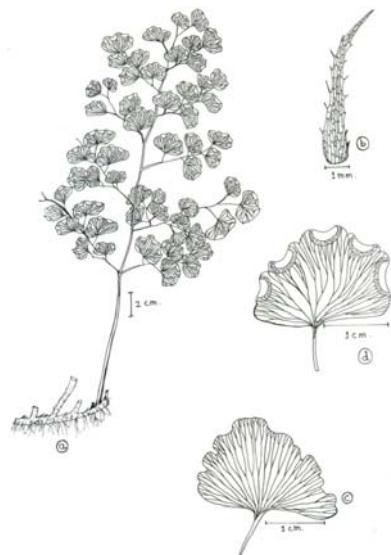


Fig. 2. *Adiantum aethiopicum* L.

- a. Habit
- b. Scale enlarged
- c. Pinna enlarged showing the venation pattern
- d. Pinna enlarged showing the sori

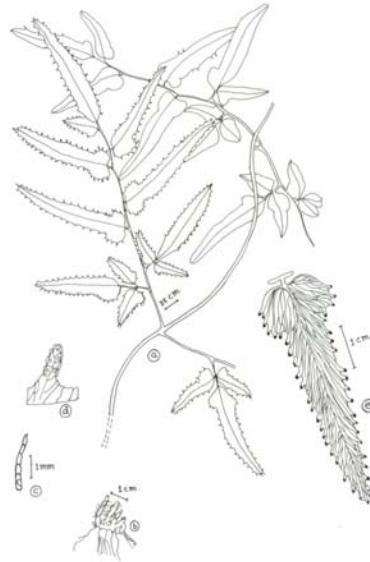


Fig. 3: *Lygodium flexuosum* (Linn.) Sw.

- a. Habit
- b. Rhizome enlarged
- c. Scale enlarged
- d. Sori enlarged
- e. Pinnule enlarged showing the soral pattern

Lygodium flexuosum (Linn.) Sw. in Schrad. J. Bot. 1800 (2): 7, 106 (1801); Beddome, Handb. Ferns Br. India. 457, t. 283 (1883); Holtum, f1. Mal. 57 (1954); Alston & Holtum, Reinwardtia, t (1): 15 (1959); Baishya & Rao, Fern & Ferns Allies Meghalaya, 37 (1982); Dixit. Cens. Ind. Pterid. 60 (1984); Jamir & Rao, Ferns Nagaland, 136 (1988).

Ophioglossum flexuosum L. Sp. Pl. 1063 (1753).

Rhizome short creeping, 0.4 cm thick, densely covered by tubular hairs all over. Stipes closely arranged, about 47cm long, 3mm thick, dark brown stramineous and glabrous above, abaxially rounded, adaxially flattened; fronds oblong-lanceolate; about 700 cm wide, tripinnate; primary pinnae alternate, about 12cm apart with about 3 mm long common stalk forked once and bearing a dormant bud on the forking axis; each forked branch bears two to three pairs simple or forked pinnules alternately, pinnules about 9 x 2 cm oblong lanceolate, simple or forked or auriculated on one or both the bases, apex subacute or acute or

acuminate, base cuneate in simple pinnules; margin regularly or irregularly serrulate in sterile pinnules; costa raised above and below; veins distinct above and below, forked thrice or twice, free, reaching the margin; pinnule pale green; texture herbaceous. Sporangia arranged adaxially on about 3 x 1.5 mm long, finger like spikes along the margin of the pinnules; sporangia about five pairs, alternate; protected by indusium; spores about 43 μm in diameter; yellowish green.

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Specimens examined

Adiantum aethiopicum: (Fig.2) Kusmi forest - Gorakhpur, 09.06.2012, 90m, 460.

Lygodium flexuosum: (Fig.3) Kusmi forest - Gorakhpur, 25.09.2011, 90m, 395, 403; Tikri forest – Gonda, 12.08.2011, 119m, 358, 372.

All specimens are deposited at the Department of Botany, St. Andrew's college (PG), Gorakhpur

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