RESEARCH NOTES

(I)

RECOLLECTION OF TWO RARE FERNS FROM NAINITAL DISTRICT

The rich and varied pteridophytic flora of Nainital has been explored and studied in the past by number of workers (Clarke, 1880; Beddome, 1883 and 1892; Hope, 1899-1904; Duthie, 1906; Loyal and Verma, 1960; Chowdhury, 1973; Verma and Khullar, 1980; Dhir, 1980; Khullar *et al.*, 1991; Khullar, 1994; Pande and Pande, 2003). Besides, the references of ferns of Nainital have been made by Dixit (1984) and Chandra (2000) while enumerating the ferns of India.

During the course of preparation and compilation of pteridophytic flora of Uttarakhand, some specimens were collected. These specimens were critically and carefully identified with the help of available published literature and herbarium scrutiny and were identified as *Microlepia speluncae* (L.) T. Moore and *Ophioglossum petiolatum* Hook. belonging to the family Dennstaedtiaceae and Ophioglossaceae respectively. The former species has been recorded by Chandra (2000) from Kumaun and latter one was recorded by Verma and Khullar (1980) from Khurpatal near Nainital by Khullar in the year 1975 and later by Khullar *et al.* (1991) and Khullar (1994) cited its occurrence from the same locality. This being a single record of this species from Nainital district so far in Kumaun Himalaya and appears to have not been recollected during recent years from Nainital. Therefore the recollection of these two rare ferns is being reported from Nainital district.

The present paper provides a brief description of these two rare ferns along with ecology and distribution in India and world. Voucher specimens are deposited in the herbarium, Department of Botany, D.S.B.Campus, Kumaun University, Nainital.

1. ***Microlepia speluncae*** (L.) T.Moore, Index Fil.: 93(1857); Bedd., Handb. Ferns Brit. India: 67 (1883); Dixit, Census Indian Pterid.:96(1984); Chandra, Ferns India:103 (2000); Fraser-Jenkins, Taxon. Rev. Three Hundred Indian Subcont. Pterid.:560(2008).

   Polypodium speluncae L., Sp. Pl. **2**:1093(1753).

   Microlepia villosa (D.Don) Ching, Act. Phytotax. Sinica **8**:139(1959).

   Davallia villosa D.Don, Prodr. Fl. Nepal.:10(1824)

   Davallia flaccida D.Don, Prodr. Fl. Nepal.:10(1824); C.B.Clarke, Trans. Linn. Soc. Lond. II (Bot.) **1**: 448(1880).

   Rhizome long-creeping, stout, clothed with pale hairs. Stipes 30-50cm long or more, purplish-green, hairy throughout. Lamina 40-80x30-40cm, tripinnate to quadripinnate, deltoid ovate, with many, alternate pinnae, petiolate, basal one is slightly reduced than the rest; pinnae ovate-lanceolate, pinnatfid at apex, petiolulate; pinnules narrowly deltoid, pinnate at apex, lobed nearly to the costa, basal acroscopic pinnule much larger than the rest, texture thin, soft, costa and costules hairy; rachis more or less densely hairy; veins hardly raised, more or less densely hairy. Sori marginal, indusiate; indusia elliptic to cup-shaped, more or less hairy, margin finely lobed. Spores yellowish-brown.

   Ecology: Usually grows near moist-shaded places in forest. Rather rare and scattered up to 1000m altitude.

   Specimens examined: Nainital district, below Sitabani, near Ramnagar.

   Distribution: India (Sikkim; Darjeeling; Arunachal Pradesh; Meghalaya; Nagaland; S. India); China; Nepal; Sri Lanka; Bangladesh; Taiwan; Japan; Malaya; tropical America.

2. ***Ophioglossum petiolatum*** Hook., Exot. Fl. **1**:56(1823); Clausen, Mem. Torrey Bot. Club **19** (2):134 (1938); Nishida, Bull. Nat. Sci. Mus. **4**:330 (1959); Panigrahi & Dixit, Proc. Nat. Inst. Sci. India **35B**:260(1969); Dixit, Census Indian Pterid.:23(1984); Khullar *et al.*, Ferns Nainital: 49 (1991); Khullar, Ill. Fern Fl. West Him. **1**:24, t.10 (1994); Chandra, Ferns India: 10 (2000); Fraser-Jenkins, Taxon. Rev. Three Hundred Indian Subcont. Pterid.: 526(2008).

   Ophioglossum cordifolium Roxb. in Griff., Calcutta J. Nat. Hist. **4**: 475 (1844).

   Ophioglossum vulgatum sensu auct. Ind. pro parte, non L. (1753).

   Rhizome short, thin, erect. Fronds one or more arising during growing season. Common stipe 2-4 (-9)cm long, shorter than the fertile stipes. Trophophylls 1.5-6.0 x 0.5-1.7cm, sessile or with a short haft, ovate-lanceolate or ovate, base obtuse or subtruncate, cuneate and

continued into a short haft, apex acute, texture thin; veins few, forming large areolae with free included veinlets. Fertile stipes much longer than the common stipes. Spores light-brown, minutely reticulate.

Ecology: Grows in moist grassy well protected and shady places under small bushes in open and partially open forests. An occasional fern from plains to 1300m altitude.

Specimens examined: Kumaun: Nainital district, Sitabani near Ramnagar.

Distribution: Jammu & Kashmir; Punjab; Chandigarh; Darjeeling; Meghalaya; Nagaland; Uttar Pradesh (Bahraich); Madhya Pradesh (Tamiya, Bastar); Palni hills); Nepal; Bhutan; China; Philippines; Japan; Sri lanka; Sumatra; Java; New Guinea; Fiji; Samoa; New Caledonia; New Zealand; N. & S. America; West Indies (including Trinidad); Mexico; tropical Africa; Madagaskar.

According to Fraser-Jenkins (*pers. comm.*) that this has long been treated as separate species from *O. reticulatum* L. (Clausen, 1938 and Panigrahi and Dixit, 1969; Dhir, 1980; Dixit, 1984; Verma and Khullar, 1980; Khullar *et al.*, 1991; Khullar, 1994), there is nevertheless some overlap due to the considerable variability in frond-shape within populations of *O. reticulatum*. This led Wieffering (1964) to combine them as one species, *O. reticulatum*, in which it has recently been followed by a number of authors, including Fraser-Jenkins (1992, 1993). However, due to their different ecology and recognisable morphology, Fraser-Jenkins (2008) has recognized it as *O. petiolatum* which is different species from *O. reticulatum*. It is normally distinguishable in having usually smaller sterile lamina, with a narrower apex, usually paler yellow-green in colour.

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