

FERN FLORA ALONG SAUNG-PINDARI TREK IN THE KUMAON HIMALAYA¹

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Fern flora along the Saung-Pindari trek in the Kumaon Himalaya (U.P.) was studied during an expedition at Pindari and Kafni glaciers in June-July, 1989. A total of 30 species belonging to 23 genera have been reported. Field notes have been given on each species.

INTRODUCTION

The Kumaon Himalaya lies from 28° 45' to 30° 44' N lat. and 78° 45' to 81° 5' E long. The 112 km trail from Saung to Pindari and Kafni glaciers runs mainly along the gorge formed by Pindari river through the lower ranges of Mounts Nanda Kot and Nanda Khat on the northern periphery of Kumaon Himalayas. Pindari and Kafni glaciers are situated 4,265 and 3,820 m above msl respectively.

The following account presents data regarding fern flora collected from the Saung-Pindari trek route.

Review of Literature: Beside the pioneering publication of Clarke (1880) and Beddome (1865), Duthie (1906) and Hope (1902) published literature on Kumaon ferns. More recently, Dhir (1980), Pangtey and Punetha (1987) provided information about Pteridophytic flora of different parts of Kumaon Himalayas. Khullar (1987), Pande and Pande (1991) published taxonomic accounts of the genus *Polystichum* of the Kumaon Himalaya. These works refer to the fern specimens collected from different sites along the Pindari trek.

MATERIAL AND METHODS

During this study, the Saung-Pindari route was visited in the last week of June 1989 to the first week of July 1989. The plants have been listed in alphabetical order. Reference has been

made to Clarke (1880), Beddome (1883), Copeland (1947) and Holttum (1954) for taxonomy and related features.

Phytogeographical resume: The Kumaon Himalaya, like other parts of the western Himalaya, is wet in outer southern ranges and slightly dry in inner northern ranges. The region can be divided into three subzones.

i. Tropical and sub-tropical zone: This zone ranges between 300 m and 1500 m above msl. The natural monsoon forest extends well in this region. At higher elevations pine trees are common. Saung (1400 m above msl), the base camp of the trek, has this type of forest.

ii. Temperate zone: It commonly ranges from 1500 m to 3500 m above msl. On the trek route, Loarkhet (1759 m), Dhakuri (2690 m), Ulma (2210 m) etc. represent this zone, characterised by coniferous trees and herbs. Khati (2575 m above msl) is a small village with cultivated trees and flowering shrubs.

iii. Alpine zone: From 3500 m above msl up to the snowline, lies the alpine zone. The shrubby rhododendrons mixed with alpine pastures represent this zone. The alpine zone in the study area is represented at Phurkia (3260 m above msl).

LIST OF SPECIES

Adiantum capillus-veneris L. Sp. PL. 2. 1096, 1753. Loarkhet; Bhattacharya. 138; June 1989; lithophyte.

Araioctegia hymenophylloides (Blume) Copel in Philip. J. Sci. 34: 241. 1927. Dhakuri; Bhattacharya, 158, June 1989; not common.

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- Asplenium trichomanes* L. Sp. PL. 2: 1080. 1753. Dhakuri; Bhattacharya, 137, June 1989; epiphyte; rare.
- Athyrium drepenopterum* (Kunze) A. Br. ex Milde. Fil. Fur. 49. 1867. Ulma; Bhattacharya, 155, June 1989; common.
- Ceterachopsis dalhousiae* (Hook.) Ching. Bull. Fan. Mem. Inst. Biol. Bot. 10: 8. 1940. Dawali; Bhattacharya, 135; June 1989; on humus covered moist soil, shade loving.
- Cheilanthes farinosa* (Forsk.) Kaul. Enum. Fil. 212. 1824. Ulma; Bhattacharya, 139, June 1989; lithophyte.
- Cheilanthes tenuifolia* (Burm. f.) Sw. Syn. Fil. 129: 332. 1806. Khati; Bhattacharya, 144; June 1989; grows on moist shady rocks; common.
- Coniogramme caudata* (Wall ex. Ettingsch) Ching. in C. Chr. Ind. Fil. 3: 56, 1934. Phurkia; Bhattacharya, 162; June 1989; rare.
- Cyathea brunoniana* (Hook.) Clarke et Baker in J. Linn. Soc. 24: 409. 1888. Dawali; Bhattacharya, 151, June 1989; not common.
- Cyrtomium caryotideum* (Wall. ex. Hook. et Grev.) Presl., Tent. Pterid. 86.f.26. 1836. Dawali; Bhattacharya, 159; June 1989; rare.
- Dryopteris sparsa* (D. Don) O. Kuntze Rev. Gen. PL. 2: 613. 1891. Loarkhet; Bhattacharya, 148; June 1989; common.
- Lepisorus kashyapii* (Mehra) Mehra in Bir. Res. Bull. Punjab Univ. (N.S.) Sci., 13: 24. 1962. Loarkhet; Bhattacharya, 136; June 1989; epiphyte; not common.
- Lepisorus leiopteris* (Kunze) Bir & Tirkha, Amer., Fern. Journ. 64: 54. f. 21-26. 1974. Khati; Bhattacharya, 140; June 1989; lithophyte; rare.
- Lepisorus nudus* (Hook.) Ching. Bull. Fan. Mem. Inst. Biol. Bot. 4: 83. 1933. Saung; Bhattacharya, 125, June 1989 lithophyte; common.
- Loxogramme involuta* (D. Don) Presl. Tent. Pterid. 213, 1836. Dawali; Bhattacharya, 16; June 1989; epiphyte; rare.
- Lunathyrium allantoides* (Bedd.) Ching. Acta. Phytotax. Sin. 9: 72. 1964. Dhakuri; Bhattacharya, 16; June 1989; common.
- Microlepidia speluncae* (Linn.) Moore, Ind. Fil. 93, 1857. Saung; Bhattacharya, 142; June 1989; common.
- Microlepidia strigosa* (Thb.) Presl. Epim. Bot. 95. 1849. Phurkia; Bhattacharya, 127; June 1989.
- Onychium japonicum* (Thb.) Kunze Bot. zeit, 6: 507. Ulma; Bhattacharya, 141; June 1989; rare.
- Osmunda claytoniana* L. Sp. PL. 2: 1066. 1753. Phurkia; Bhattacharya, 128; June 1989; not common.
- Osmunda regalis* L. Sp. PL. 2: 1065. 1753. Ulma; Bhattacharya, 129; June 1989; rare.
- Polypodioides amoena* (Wall.) Ching. Acta. Phytotax. Sin. 16(4): 27. 1978. Khati; Bhattacharya, 154, June 1989 epiphyte; rare.
- Polypodioides micro-rhizoma* (Clarke) Ching. Acta. Phytotax. Sin 16(4): 27, 1978. Loarkhet; Bhattacharya, 132; June 1989; epiphyte.
- Polypodiastrum argutum* (Wall ex. Hook.) Ching. Acta. Phytotax. Sin 16(4): 28. 1978. Ulma; Bhattacharya, 143; June 1989; epiphyte; rare.
- Polystichum mehrae* F. Jenkins & Khullar. Indian Fern J. 2 (1&2). 10, 1985. Ulma; Bhattacharya, 149; June 1989; not common.
- Polystichum squarrosissum* (D. Don) Fee. Gen. Fil. 278. 1850-52. Dawali; Bhattacharya, 161; June 1989; abundant in some places.
- Pteridium aquilinum* (L.) Kuhn. V. Deck Reis 3(3): 11. 1879. Dhakuri; Bhattacharya, 153; June 1989; common.
- Pteris cretica* L. Mant. PL. 7 130. 1967. Ulma; Bhattacharya, 133; June 1989; in open sunny places.
- Sphenomeris chinensis* (L) Taxon. Journ. Wash. Acad. Sci. 3: 144. 1913. Dhakuri; Bhattacharya, 148; June 1989; common.
- Woodwardia unigemmata* (Makino) Nakai. Bot. Mag. Tokyo 39: 103, 1925. Ulma; Bhattacharya, 145; June 1989; not common.

DISCUSSION

A total of 30 species belonging to 23 genera have been collected on the Saung-Pindari trail. The only species of tree fern recorded in the present survey is *Cyathea brunoniana*, which is well distributed in western Himalaya (Dixit, 1984). Other important ferns recorded in the survey include *Asplenium trichomanes*, *Cyrtomium caryotideum*, *Loxogramme involuta*, *Onychium japonicum*, *Osmunda claytoniana*, and *O. regalis*. *Osmunda regalis* is very common in South India and Western mountains and is recorded also in Kumaon (Beddome, 1883). In the present investigation too, the fern was found only at high elevation at Ulma (2210 m).

Osmunda claytoniana which is recorded from Kashmir to Bhutan at still higher elevations (Beddome, 1883), has been recorded from Phurkia (3260 m) during the present study. *Polystichum mehrae* reported earlier from Dhakuri, Khati, Dawali (Pande and Pande, 1991), has been found at Ulma (2210 m) during the present survey.

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