

ADDITIONS TO THE LICHEN FLORA OF INDIA FROM SIKKIM

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Lichen collections made between 1994 and 2000 from floristically rich state of Sikkim have been investigated, which have resulted in the publication of many interesting species (Sinha & Chauhan, 1996, 1998; Sinha, 1999; Divakar & al., 2001). In continuation of the same studies, the following 7 more macrolichen species discovered as new records for Indian lichen flora and dealt here along with their distinguishing characters, distribution in order to facilitate their easy identification. Specimens studied are preserved in the herbarium, Botanical Survey of India, Sikkim Himalayan Circle, Gangtok (BSHC).

1. **Alectoria ochroleuca** (Hoffm.) Massal., Sched. Critic. Lich. Ital. : 47. 1855; G. Awasthi & D. Awasthi in Candollea 40 : 306. 1985. *Usnea ochroleuca* Hoffm., Descr. Adumbr. Pl. Lich. 2 (1) : 7. 1791.

The species is characterized by fruticose, terete, yellow, pseudocyphellate, anisotomic dichotomous branches with black apices and presence of usnic acid. It grows sparsely on ground as well as on boulders in dry alpine areas of North Sikkim. It is distributed in China, Japan, Nepal, New Zealand, North America and Europe.

Specimens examined : North Sikkim : Lasher, 4500 m, *G.P. Sinha* 1187. Llonakh valley, Llonakh chu surroundings, 4500 m, *G.P. Sinha* 1669. Sebu La base camp, west side, 4500-4800 m, *G.P. Sinha* 1208.

2. **Cetrelia delavayana** W. Culb. & C. Culb. in Contr. U.S. Nat. Herb. 34 : 509. 1968.

It is characterized by foliose thallus with mineral grey to pale brownish, pseudocyphellate, rotund lobes lacking isidia, soredia, lobulae and presence of perlatolic acid. It sparsely grows on small shrubs in alpine areas of North Sikkim and distributed in China.

Specimen examined : North Sikkim : Sebu La base camp, west side, 4500-4800 m, *G. P. Sinha* 1221.

- 3. *Cetrelia japonica* (Zahlbr.) W. Culb. & C. Culb. in Contr. U.S. Nat. Herb. 34 : 511. 1968.**
Cetraria japonica Zahlbr. in Annal. Mycol. 14 : 60. 1916.

The species is characterized by foliose thallus with greyish white, pseudocyphellate, lobes, fringed margins and lobulae lacking isidia or soredia and by presence of microphyllinic acid. It sparsely grows on tree trunks in coniferous forest. It is distributed in Borneo, Japan, Java, South Korea and Taiwan.

Specimen examined : North Sikkim : Shingba Rhododendron Sanctuary, Phuni, 3350 m, G.P. Sinha 1066.

- 4. *Heterodermia chondroidea* W. Web. & D. Awasthi, Bryologist 74 : 181. 1971.**

The species is characterized by foliose thallus, blackish, narrow linear lobes with rounded lateral pruinose microphylline apices, lacking isidia and soredia and by presence of atranorin. It sparsely grows on boulders in dry alpine areas of North Sikkim. It is distributed in Nepal and Rocky Mountains in North America.

Specimen examined : North Sikkim : Llonakh valley, 4500 m, G.P. Sinha 1572 (Det. T.L. Esslinger).

- 5. *Phaeophyscia decolor* (Kashiwadani) Essl., Mycotaxon 7(2) : 299. 1978. *Physcia decolor* Kashiwadani, Ginkgoana 3 : 42. 1975.**

The species is characterized by foliose thallus, ashy grey, 0.5-1 mm wide dichotomously branched, epruinose lobes with *Physcia* type spores, lacking isidia and soredia and by presence of zeorin. It sparsely grows on thick soil covering on boulders in alpine North Sikkim. It is distributed in Japan, Europe and North America.

Specimen examined : North Sikkim : Llonakh valley, Muguthang, 4500 m, G.P. Sinha 1561 (det. T.L. Esslinger).

- 6. *Ramalina shinanoana* Kashiwadani, Bull. Natn. Sci. Mus. Tokyo, ser. B, 12(4) : 122. 1986.**

The species is characterized by fruticose thallus, yellowish grey, erect to subpendulous, narrow, solid, pseudocyphellate-sorediate branches lacking chondroid tissue and by presence of homosekikaic, sekikaic, 4-o-methylnorhomosekikaic and usnic acids. It commonly grows on tree trunks in subtropical and temperate areas of Sikkim. It is distributed in China and Japan.

Specimens examined : East Sikkim : Rechala surroundings, 2700-2900 m, *G.P. Sinha* 1009. North Sikkim : Near Lachung, on roadside, 2500 m, *G.P. Sinha* 1027. Tingbong, near Kusum village, 1400 m, *G. P. Sinha* 638. South Sikkim : Namchi-Damthang road, at 2 km point, 1800 m, *G.P. Sinha* 25. West Sikkim : On way between Labdang-Pokharidanda, 2000 m, *G.P. Sinha* 491 (det. H. Kashiwadani).

7. *Umbilicaria nanella* Frey & Poelt, Kumbhu Himal 6(3) : 425. 1977.

The species is characterized by grey to blackish, monophyllous, microphylline pruinose umbilicate lobes with marginal rhizinoid cilia, lateral umbilicus, lacking isidia or soredia and by presence of gyrophoric acid. It sparsely grows on exposed rocks in dry alpine areas. It is distributed in China and Nepal.

Specimen examined : North Sikkim; Llonakh valley, Chhaber lake, below Luna la, 4600 m, *G.P. Sinha* 1588 A.

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