Indian J. mycol. Res. 16 (2), 273-278 (1978)

CONTRIBUTION TO THE LICHEN FLORA OF CHAKRATA HILLS, UTTAR PRADESH, INDIA.

By

Dharani Dhar Awasthi and Mamta Joshi
Department of Botany, Lucknow University, Lucknow

The paper enumerates the 64 taxa of lichens from Chekrata Hills. Out of them *Phaeophyscia endococcinodes* (Poelt) Awasthi and M. Joshi, *Phaeophyscia pyrrhophora* (Poelt) Awasthi and M. Joshi are new combinations, and the taxa *Graphina parilis* (Kremp.) Mull. Arg., *Gyalecta jenensis* (Batsh.) Zahlbr., *Placynthium nigrum* (Huds.) S.F. Gray, *Psorella microphyllina* Zahlbr., *Verrucaria nigrescens* Pers., and *Buellia punctata* Mass. var. *polyspora* (Willey) Finkare new reports from India.

INTRODUCTION

Chakrata is situated in Dehradun district of Uttar Pradesh in an approximate 30° 32" N and 77° 54" E, and has an average elevation of ca. 2295 m. On the north west of Chakrata and at a distance of about 10 km are the double peaked Deoban ranges (alt. ca. 3110 m). The arboreal vegetation in Chakrata and Deoban is predominated by *Cedrus deodara*, *Aesculus indica*, *Quercus* spp. and *Rodhodendron arboreum*, all of which form excellent habitats for the growth of lichens. Their trunks and branches are densely covered with different taxa of lichens, the most common of which are species of *Collema*, *Heterodermia*, *Leptogium*, *Parmelia*, *Phaeophyscia*, *Ramalina* and *Usnea*.

The following enumeration is based on a collection of lichens made in 1976 from Chakrata proper, on way to Deoban, and Deoban forest. It has been found that this lichen flora exhibits close similarity to that of Mussoorie hills (Awasthi

and Joshi, 1977) though several species have been found only in Deoban area and not from Mussoorie.

The new reports from India have been marked by an asterisk and have also been given a short description.

The localties have been abbreviated as follows: Chakrata proper (A) On way from Chakrate to Deoban (B) Deoban forest (C) The field numbers are put within parenthesis. The specimens are lodged in the herbarium of Botany Department, Lucknow University (LWU).

ENUMERATION OF SPECIES

VERRUCARIACEAE

* *Verrucaria nigrescens* Pers.

Thallus saxicolous, areolate, brownish to dull dlack; perithecia minute, partially immersed, black, 0.2 - 0.5 mm across; superficial portion subhemisp herical, black, exciple broader towards the upper half, narrower towards the lower half; asci 8 spored; spores colourless, simple, oval to ellipsoid, 19-28 x 9-13 μm; paraphyses indistinct. gelatinized, B(76.52, 76.50); C(76.126, 76.131).

DERMATOCARPACEAE

Dermatocarpon vellereum Zschacke-Common on rocks, A(76.12); B(76.205); C(76.88).

Endocarpon pusillum Hedw. - on rocks, B(76.49).

CALICIACEAE

Calicium abietinum Pers.—on decaying bark, C(76.119).

GRAPHIDACEAE

* *Graphina parils* (Kremp.) Mull. Arg.—

Thallus corticolous, pale grey; apothecia lirelliform, lirellae 0.5-1 mm long, simple to branched; exciple brownish black, open; labia 2-3 sulcate;

spores colourless, muriform, parenchymatous, 35-75 x 16-23 μm, thallus K × yellow, A (76.35) ; C(76.179).

GYALECTACEAE

* *Gyalecta jenensis* (Batsh.) Zahlbr.

Thallus saxicolous, pale grey, smooth, thin, alga *Trentepohlia* ; apothecia 0 3-0.6 mm in diameter, pale brown; spore colourless, muriform, ellipsoid, 9-16 x 6-8 μm; C(76.130).

COLLEMATACEAE

Collema furfuraceum (Arn.) Dr.- Ctrforticolous, B(76.72B).

Collema furfureolum Mull. Arg.-on stones/among mossess, C(76.91.

Collema polycarpon Hoffm -on stones among mosses. B (76.66, 76.74).

Collema pulcellum Ach. var. *pulcellum* - on bark, C (76.123).

Collema subflaccidum Degel-on bark, B (76.72A); C (76.141, 76.145).

Collema tenax (Sw.) Ach. —Corticolous and Saxicolous, A(76.33) ; B(76.50, 76.75); C(76.89, 76.115).

Collema tuniforme (Ach.) Ach., em. Degel. —Saxicolous, C(76. 139).

Leptogium azureum (Sw.) Mont. _Corticolous, B(76.68); C(76.180).

Leptogium burnetiae Dodge— Corticolous, B(76.64, 76.202); C(76.137,76.142, 76.169, 76.181).

Leptogium pedicellatum P.M. Jorg.—Corticolous, A(76.20, 76.22, 76.32; B(76. 195); C(76.67, 76.84, 76.138).

Leptogium trichophorum Müll. Arg.—on bark in shady places, C(76.105, 76.150).

PANNARIACEAE

Coccocarpia pellita (Ach.) Müll. Arg —On stones among mosses, B(76.192).

STICTACEAE

Lobaria isidiophora Yoshim.—On bark, C(76.140, 76.166).

Lobaria isidiosa (Müll. Arg.) Vain.—Corticolous and muscicolous, C(76.109, 76.174).

PELTIGERACEAE

Peltigera canina (L.) Willd.—Corticolous, C(76.85, 76.185).

Peltigera erumpens (Tayl.) Vain—On ground among mssess, B(76.26).

Peltigera rufescens (Weiss) Humb. —On stones and bark,A (76.37); C(76.69, 76 106).

PLACYNTHIACEAE sensu Henssen and Jahns (1974)

* *Placynthium nigrum* (Huds.) S.F. Gray

Thallus saxicolous, squamulose, olive brown, in rosettes bordered by black hypothallus; squamules discrete at the margin, crowded and areolate to crust like at the centre, squamules 50-110 μm thick; mycobiont forming a reticulum of hyphal chains throughout the thickness of squamules; phycobiont a menber of Rivulariaceae restricted in the upper side of the thallus; apothecia 0.2—0.4 mm in diameter, distinct. black, plane; proper e<ciple purple brown, 64—76 μm thick, asci 8 spores ; spores colourless, narrow, ellipsoid, 1-3 (4) septate, 10 – 22 x 4—7 μm; paraphyses septate, apically branched, 25 μm thick, apices $\pm$ free and pointed; thallus K–, B(76.44, 76.45).

LECIDEACEAE

* *Psorella* cfr. *microphyllina* Zahlbr.—

Thallus corticolous, squamulose, ashy brownish ; lower side thin rhizinate ; apothecia not seen, B(76.73).

LECANORACEAE

Ochrolechia rosella (Mull. Arg.) Vers – Corticolous, B(76.80); C(76. 114, 76,154)

PARMELIACEAE

Cetrelia braunsiana (Mull. Arg.) Culb. and Culb.—Corticolous, C(76.159,76.165)

Cetrelia cetrariodes (Del.) Culb. and Culb.—Corticolous, A(76.40) ; C, Awasthi 960 (Herb. Awasthi)

Cetrelia olivetorum (Nyl.) Culb. and Culb.—Corticolous, C(76.104, 76.144).

Cetruia lecostigma Lev.—Corticolous, C(76. 96).

Cetraria thomsonii (Stirt.) Mull. Arg.—Corticolous, C(76.143, 76.177).

Cetraria wallichiana (Tayl.) Mull. Arg. – Corticolous, C(76.83, 76.151).

Parmelia austrosinensis Zahlbr.-Corticolous, A(76.40B).

Parmelia caperata (L.) Ach. - Corticolous, A(76.26); C(75.93. 76 178).

Parmelia cirrhata Fr. - Corticolous, A(76.3, 76.14) ; C(76.86, 76.99, 76.171).

Parmelia exsecta Tayl. - Corticolous, C(76.187).

Parmelia flaventior Stirt. - Corticolous, C(76.90).

Parmelia meizospora (Nyl) Nyl. - Corticolous, A(76.21, 76.30), C(76.158).

Parmelia nilgherrensis Tayl - Corticolous, A(76.24); C(76.65, 76.102,76.188).

Parmelia reticulata Tayl. - Corticolous, A(76.2, 76.25); C(76.189).

Parmelia wallichiana Tayl - Corticolous, A(76.27).

USNEACEAE

Alectoria sulcata (L'ev.) Nyl. - Corticolous (fallen form the tree) C(76.155).

Ramalina calicaris (L.) Fr.- On bark, B(76.186).

Ramalina sinensis Jatta-Corticolous and saxicolous, A(76.7, 76.56).

Ramalina subcomplanata Nyl.- Corticolous, A(76.11, 75.15, 76.43); B(76.201); C(76.118).

Usnea baileyi (Stirt.) Zahlbr. - On bark at lower elevation, A(76.41).

Usnea flexilis Stirt. - Corticolous, C(76.156, 76.172).

Usnea longissima Ach.- Corticolous, B(76.78, 76.79).

Usnea luridorufa Stirt. - Corticolous, C(76,100, 76.103).

Usnea sordida Mot.- Corticolous, A(76.13); (76.63, 76.200), C(76.111, 76.116)

Usnea cfr. *sorediosula* (Müll. Arg.) Mot. - On bark, D(76.173).

BUELLIACEAE

* *Buellia punctata* Mass. var. polyspora (Willey) Fink-

Thallus corticolous, thin, dark grey ; apothecia black, 0.2-1 mm in diameter; hymenium without oil, I + blue ; hypothecium and exciple brownish black; asci 12-(16) spored : spores brown bicelled, 9-13x5-7 μm, thin walled, C(76.120)

Rinodina colobina (Ach.) Th. Fr. - Thallus corticolous, sorediate, K+ Violet red: C(76.94).

Rinodina conradi Korb. var. *megaspora* Awasthi and Agarwal. -On bark A(76.6);. C(76.08,76.153).

PHYSCIACEAE

Heterodermia leucomela subsp. *boryi* (F'ee) Swinsc. and Krog -On bark, A(76.4); C(76.185).

Heterodermia diademata (Tayl.) Awas.-Corticolous, A(76.28); C(76.101, 76.134, 76.175).

Heterodermia hypocaesisa (Yasuda) Awas.-Corticolous, B(76.193) ; C(76.135).

Heterodermia incana (Stirt.) Awas.-On bark, A(76.42).

Heterodermia pseudospeciosa (Kurok.) Culb.-Corticolous, A(76.5).

The treatment of Physcias by Moberg (1977) has necessitated the following new combinations :

Phaeophyscia endococcinodes (Poelt) Comb. nov.

- *Physcia endococcinodes* Poelt, Khumbu Himal, 6(2): 77,1974. Corticolous, rare in the area: A(76.1).

Phaeophyscia hispidula (Ach.) Awasthi and S. Singh

On bark, stones and soil, A(76.8); B(76.197); C(76.81, 76.170 76.182).

Phaeophyscia pyrrhophora (Poelt.) Comb. nov.

- *Physcia pyrrhophora* Poelt, Khumbu Himal, 6(2) : 84, 1974.

Corticolous : A(76.17).

ACKNOWLEDEGMENT

This work has been carried out under the research project "Lichen flora of Mussoorie and Chakrata Hills" financed by State C.S.T., U.P., Lucknow.

REFERENCES

Awasthi, D.D. and Joshi, M. 1977. Macrolichens of Mussoorie hills, Uttar Pradesh, *Geophytology* 7 (1), 91-97.

Henssen, A and Jahns, H.M. 1974. *Lichenes,* Georg Thieme Verlag Stuttgart.

Moberg R. 1977. The lichen genus Physcia and allied genera in Fennoscandia, *Symb. Bot. Upsal.*, 22 (1), 1-108.