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## Macrolichen diversity of Mahendragiri Hills of Odisha state, India – II

G. Swarnalatha

Botanical Survey of India

Deccan Regional Centre, Hyderabad-500048, Telangana, India

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### ABSTRACT

The present paper enumerates a total of 13 species of macrolichens belonging to nine genera and six families collected from Mahendragiri Hills of Odisha state. Of these, 11 species, namely *Coccocarpia erythrocardia*, *Heterodermia albicans*, *H. antillarum*, *H. formula*, *Hyperphyscia isidiata*, *Myelochroa aurulenta*, *Phaeophyscia hispidula*, *P. pyrrophora*, *Phyllopsora manipurensis*, *Pyxine reticulata* and *Scytinium gelatinosum* are reported here as new distributional records for the state of Odisha.

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### 1. Introduction

Mahendragiri Hills, located in Gajapati district of Odisha State in the Eastern Ghats, are a range of hills with highest peak of 1501 meter. This mountain range and adjoining areas are quite rich in terms of biological diversity, both plants and animals. In spite of fairly rich lichen diversity in Mahendragiri Hills, this taxonomic group has not received much attention from lichenologists. In recent years, Nayak *et al.* (2016) and Swarnalatha (2016 a&b, 2017) have contributed to the study of the lichens of Mahendragiri.

As a part of the research project on survey and documentation of lichens of Odisha, the author undertook three field tours to the Mahendragiri Hills between 2016 and 2018. Based on the collections, occurrence of 18 species of lichens have been reported in different publications (Swarnalatha, 2016 a&b, 2017). As an extension of the earlier work, some more taxa were identified subsequently and in the present paper, 13 more species of macrolichens under nine genera and six families are reported from the Mahendragiri Hills. Of these, 11 species such as *Coccocarpia erythrocardia*, *Heterodermia albicans*, *H. antillarum*, *H. formula*, *Hyperphyscia isidiata*, *Myelochroa aurulenta*,

*Phaeophyscia hispidula*, *P. pyrrophora*, *Phyllopsora manipurensis*, *Pyxine reticulata* and *Scytinium gelatinosum* are reported here as new distributional records for the state of Odisha. An enumeration of these 13 species is provided in this paper. In the enumeration, the species reported as new to the State of Odisha are marked with asterisks (\*).

### 2. Materials and methods

The present work is based mainly on the collections made by the author from Mahendragiri Hills of Odisha during 2016-2018 which are deposited in the herbarium at Botanical Survey of India, Deccan Regional Centre, Hyderabad (BSID). Besides, a few specimens of lichens available in the herbarium of University of Lucknow (LWU) collected from Mahendragiri Hills by D. D. Awasthi and group during 1986 and currently housed in the Herbarium of National Botanical Research Institute, Lucknow (LWG) were also examined.

The morphological features were studied under stereo-zoom microscopes (Olympus SZ61) and anatomical characters were examined with compound microscope (Magnüs MLX-Tr). Colour spot tests were performed by using K, C and PD reagents. The lichen substances were

✉ Corresponding author; Email: swarnalathaginnaram@gmail.com

identified by Thin Layer Chromatography (TLC) using solvent system A, following White & James (1985). All specimens were examined under UV light (365 nm).

### 3. Enumeration of Taxa

\**Coccocarpia erythrocardia* (Müll. Arg.) Arv., Opera Botanica 67: 55. 1983. (COCCOCARPIACEAE)

*Specimen examined:* Odisha: Gajapati District, Parlakhemundi Forest Division, Mahendragiri Hills, N 18°58'22.23", E 084°22'38.43", alt. c. 1105m, 11 Sep. 2016, G. Swarnalatha 514D (BSID).

*Coccocarpia pellita* (Ach.) Müll.-Arg., Flora Regensburg 65: 320. 1882. (COCCOCARPIACEAE)

*Specimen examined:* Odisha: Gajapati District, Parlakhemundi Forest Division, Mahendragiri Hills, N 18.97244°, E 084.36148°, alt. c. 1137m, 18 Aug. 2018, G. Swarnalatha 706 (BSID).

\**Heterodermia albicans* (Pers.) Swinscow & Krog, Lichenologist 8(2): 113. 1976. (PHYSICIACEAE)

*Specimen examined:* Odisha: Gajapati District, Parlakhemundi Forest Division, Mahendragiri Hills, N 18.96507°, E 084.36945°, alt. c. 1355m, 20 Aug. 2018, G. Swarnalatha 739A (BSID).

\**Heterodermia antillarum* (Vain.) Swinscow & Krog, Lichenologist 8(2): 114. 1976. (PHYSICIACEAE)

*Specimens examined:* Odisha: Gajapati District, Parlakhemundi Forest Division, Mahendragiri Hills, N 19°00'26.33", E 084°21'58.23", alt. c. 560m, 08 Sep. 2016, G. Swarnalatha 435C (BSID); Mahendragiri Hills, N 18.97287°, E 084.36082°, alt. c. 1105m, 18 Aug. 2018, G. Swarnalatha 702C, 703B (BSID).

\**Heterodermia firmula* (Linds.) Trevis., Atti Soc. ital. Sci. nat. 11: 615. 1868. (PHYSICIACEAE)

*Specimen examined:* Odisha: Gajapati District, Parlakhemundi Forest Division, Mahendragiri Hills, on fallen tree branch, 10 July 2016, G. Swarnalatha 399 (BSID).

\**Hyperphyscia isidiata* Moberg, Nord. J. Bot. 7(6): 722. 1987. (PHYSICIACEAE)

*Specimen examined:* Odisha: Gajapati District, Parlakhemundi Forest Division, Mahendragiri Hills, N 18.96753°, E 084.36868°, alt. c. 1392m, 21 Aug. 2018, G. Swarnalatha 753 (BSID).

\**Myelochroa aurulenta* (Tuck.) Elix & Hale, Mycotaxon 29: 240. 1987. (PARMELIACEAE)

*Specimen examined:* Odisha: Gajapati District, foot hills of Mahendragiri, near Burukhat area, 04 Mar. 1986, D.D. Awasthi, G. Awasthi, R. Mathur and P. Srivastava 86.201A (LWU-LWG).

\**Parmotrema andinum* (Müll. Arg.) Hale, Phytologia 28(4): 334. 1974. (PARMELIACEAE)

*Specimen examined:* Odisha: Gajapati District, foot hills of Mahendragiri, near Burukhat area, 04 Mar. 1986, D.D. Awasthi, G. Awasthi, R. Mathur and P. Srivastava 86.201B (LWU-LWG).

\**Phaeophyscia hispidula* (Ach.) Essl., Mycotaxon 7(2): 305. 1978. (PHYSICIACEAE)

*Specimen examined:* Odisha: Gajapati District, Parlakhemundi Forest Division, Mahendragiri Hills, N 18.95882°, E 084.37431°, alt. c. 908m, 19 Aug. 2018, G. Swarnalatha 724 (BSID).

\**Phaeophyscia pyrrophora* (Poelt) D. D. Awasthi & M. Joshi, Indian J. Mycol. Res. 16(2): 278. 1978. (PHYSICIACEAE)

*Specimen examined:* Odisha: Gajapati District, Parlakhemundi Forest Division, Mahendragiri Hills, N 18.97253°, E 084.35698°, alt. c. 1035m, 21 Aug. 2018, G. Swarnalatha 767 (BSID).

\**Phyllopsora manipurensis* (Müll.-Arg.) Gotth. Schneider, Bibl. Lichenol. 13: 177. 1979 (1980). (RAMALINACEAE)

*Specimen examined:* Odisha: Gajapati District, Parlakhemundi Forest Division, Mahendragiri Hills, N 18.96553°, E 084.36848°, alt. c. 1378m, 20 Aug. 2018, G. Swarnalatha 743 (BSID).

\**Pyxine reticulata* (Vain.) Vain. Suomal. Tiedeakat. Toim. (Ser. A) 6: 70. 1914. (CALICIACEAE)

*Specimen examined:* Odisha: Gajapati District, Parlakhemundi Forest Division, Mahendragiri Hills, N 19°00'26.33", E 084°21'58.23", alt. c. 560m, 08 Sep. 2016, G. Swarnalatha 434 (BSID).

\**Scytinium gelatinosum* (With.) Otálora, P.M. Jørg. & Wedin, Fungal Diversity 64: 290. 2014. (COLLEMATAACEAE)

*Specimen examined:* Odisha: Gajapati District, foot hills of Mahendragiri, near Burukhat area, 04 Mar. 1986, D. D. Awasthi, G. Awasthi, R. Mathur and P. Srivastava 86.178 (LWU-LWG).

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