



Macrolichen diversity of Mahendragiri hills of Odisha State, India

G. Swarnalatha[‡]

Botanical Survey of India, Deccan Regional Centre
Hyderabad-500048, Telangana, India

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ABSTRACT

The present paper enumerates 16 species of foliose lichens belonging to seven genera and five families from Mahendragiri hills of Odisha state. Of these, six species namely, *Bulbothrix setschwanensis*, *Leptogium coralloideum*, *L. cyanescens*, *L. saturninum*, *Parmotrema crinitoides* and *Pyxine sorediata* are reported here as new distributional records for the state of Odisha.

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1. Introduction

Mahendragiri hills are located in Paralakhemundi subdivision of Gajapati district of Odisha in the Eastern Ghats region. These hill ranges lie between 84°102' E - 84°302' E longitude and 18°502' N - 19°052' N latitude (Krishnamurthy *et al.*, 2014) and the highest peak has an elevation of 1501 meter. Mahendragiri is recognized as a biodiversity hot spot due to the presence of a large number of medicinal plants, endangered taxa and phytogeographically interesting plant and animal species. The flowering plant and fern diversity of the region is quite rich and has been studied by several workers in the past (Gamble, 1892; Gamble & Fischer, 1915-1935; Mukherjee, 1935; Kapoor, 1964 and Saxena & Brahmam, 1978). However, in spite of the rich lichen flora of Mahendragiri, the region has been poorly explored and only five lichen species namely, *Bacidia* sp., *Coccocarpia palmicola*, *Coccocarpia pellita*, *Heterodermia* sp. and *Letrouitia* sp. have been reported from this hill range (Nayak *et al.*, 2016). Of these, *Cococarpia palmicola*, *Cococarpia pellita* and *Heterodermia* sp. are known to be macrolichens. As a part of the ongoing research project entitled "Inventory of Macrolichen diversity of Odisha State" implemented by the

Botanical Survey of India, the author conducted two field tours in Paralakhemundi Forest Division in 2016, collected macrolichens and identified the specimens. The voucher specimens collected from Mahendragiri hills have been deposited in the Herbarium of Botanical Survey of India, Deccan Regional Centre, Hyderabad (BSID). A total of 16 macrolichen species belonging to seven genera and five families have been identified and preserved. Of these, six species viz. *Bulbothrix setschwanensis*, *Leptogium coralloideum*, *L. cyanescens*, *L. saturninum*, *Parmotrema crinitoides* and *Pyxine sorediata* turned out to be new distribution records for the state of Odisha. All the identified taxa are enumerated here with citation of specimens examined. The species reported as new to the State of Odisha are marked by an asterisk (*) in the enumeration.

2. Materials and methods

The morphological features were studied under stereo-zoom microscopes (Olympus SZ61 and Nikon SMZ1500) and anatomical characters were examined with compound microscope (Magnus MLX-Tr). Colour spot tests were performed by using K, C and PD reagents. The lichen substances were identified by Thin Layer Chromatography

[‡] Corresponding author; Email: swarnalathaginnaram@gmail.com

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

3. Enumeration of taxa

Bulbothrix isidiza (Nyl.) Hale, Phytologia 28: 480. 1974. (PARMELIACEAE)

Specimens examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°56.7582, E 084°20.5282, alt. c. 566 m, 08 July 2016, *G. Swarnalatha* 261 (BSID); Ramgiri Range, N 18°582 29.83, E 084°222 13.33, alt. c. 1379 m, 12 Sep. 2016, *G. Swarnalatha* 571 (BSID).

**Bulbothrix setschwanensis* (Zahlbr.) Hale, Phytologia 28: 480. 1974 (PARMELIACEAE)

Specimen examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°56.7582, E 084°20.5282, alt. c. 566 m, 08 July 2016, *G. Swarnalatha* 260 (BSID).

Coccocarpia palmicola (Spreng.) Arv. & D.J. Galloway, Bot. Not.. 132: 242. 1979. (COCCOCARPACEAE)

Specimens examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°58.3522, E 084°22.2042, alt. c. 1369 m, 09 July 2016, *G. Swarnalatha* 278 (BSID); Ramgiri Range, near Burkotha on the way to Mahendragiri, 12 July 2016, *G. Swarnalatha* 393 (BSID); Ramgiri Range, N 18°582 21.43, E 084°212 35.73, alt. c. 1086 m, 11 Sep. 2016, *G. Swarnalatha* 522 (BSID); Ramgiri Range, N 18°582 20.83, E 084°212 32.83, alt. c. 1087 m, 11 Sep. 2016, *G. Swarnalatha* 554 & 555 (BSID).

Dirinaria applanata (Fée) D. D. Awasthi in D. D. Awasthi & M. R. Agarwal, J. Indian Bot. Soc. 49: 135. 1970. (CALICIACEAE)

Specimens examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°56.4922, E 084°20.1502, alt. c. 603 m, 10 July 2016, *G. Swarnalatha* 301 (BSID); Ramgiri Range, N 18°56.5102, E 084°19.6112, alt. c. 569 m, 12 July 2016, *G. Swarnalatha* 345 & 346 (BSID).

Dirinaria consimilis (Stirt.) D. D. Awasthi in D. D. Awasthi & M. R. Agarwal, J. Indian Bot. Soc. 49: 135. 1970. (CALICIACEAE)

Specimen examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, on fallen

twigs, N 18°582 20.93, E 084°212 34.73, 12 Sep. 2016, *G. Swarnalatha* 581 (BSID).

Heterodermia diademata (Taylor) D. D. Awasthi, Geophytology 3: 113. 1973. (PHYSICIACEAE)

Specimen examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°582 22.23, E 084°212 50.83, alt. c. 1195 m, 12 Sep. 2016, *G. Swarnalatha* 570A (BSID).

Heterodermia speciosa (Wulf.) Trevis., Atti della Società Italiana di Scienze Naturali 11: 614. 1868. (PHYSICIACEAE)

Specimen examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°58.3522, E 084°22.2042, alt. c. 1369 m, 09 July 2016, *G. Swarnalatha* 279 (BSID).

Leptogium austroamericanum (Malme) C.W. Dodge, Ann. Missouri Bot. Gard. 20: 419. 1933. (COLLEMATACEAE)

Specimen examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°58.3472, E 084°21.4092, alt. c. 1026 m, 11 July 2016, *G. Swarnalatha* 333 (BSID).

**Leptogium coralloideum* (Meyen & Flot.) Vain., Suomal. Tiedeakat. Toim., ser. A, 6(7): 110. 1915 (COLLEMATACEAE)

Specimens examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°582 21.43, E 084°212 35.73, alt. c. 1086 m, 11 Sep. 2016, *G. Swarnalatha* 523 (BSID).

**Leptogium cyanescens* (Rabenh.) Körb., Syst. Lich. Germ.: 420. 1855. (COLLEMATACEAE)

Specimen examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°582 22.43, E 084°212 45.23, alt. c. 1155 m, 11 Sep. 2016, *G. Swarnalatha* 514A (BSID).

**Leptogium saturninum* (Dicks.) Nyl., Acta Soc. Linn. Bordeaux 21: 272. 1856. (COLLEMATACEAE)

Specimen examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°582 22.43, E 084°212 45.23, alt. c. 1155 m, 2016, *G. Swarnalatha* 514B (BSID).

**Parmotrema crinitoides* J. C. Wei, Enum. Lich. China : 177. 1991. (PARMELIACEAE)

Specimen examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°56.7582, E 084°20.5282, alt. c. 566 m, 08 July 2016, *G. Swarnalatha* 258 (BSID).

Parmotrema praesorediosum (Nyl.) Hale, *Phytologia* 28: 338. 1974. (PARMELIACEAE)

Specimen examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°56.7582, E 084°20.5282, alt. c. 566 m, 08 July 2016, *G. Swarnalatha* 257 (BSID).

Parmotrema ravum (Krog & Swinscow) Sérus. in *Vizda, Lich. Sel Exs.*: 3 1983. (PARMELIACEAE)

Specimen examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°56.21.03, E 084°19.238.63, alt. c. 605 m, 2016, *G. Swarnalatha* 485 (BSID).

Pyxine cocoes (Sw.) Nyl., *Mem. Soc. Imp. Sci. Nat. Cherbourg* 5: 108. 1857. (CALICIACEAE)

Specimens examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, near Laxmipur, N 18°56.25.43, E 084°17.26.43, alt. c. 499 m, 08 Sep. 2016, *G. Swarnalatha* 441 & 442 (BSID).

**Pyxine soreliata* (Ach.) Mont. in *Sagra, Hist. Cuba Bot.* 9: 188. 1824. (CALICIACEAE)

Specimen examined: Odisha: Gajapati District, Parlakhemundi Forest Division, Ramgiri Range, N 18°56.4922, E 084°20.1502, alt. c. 603 m, 10 July 2016, *G. Swarnalatha* 298 (BSID).

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