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A new species of *Heterodermia* (Ascomycota, Physciaceae) from India, along with a new record and range extension of lichenized fungi in India

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Abstract

A new saxicolous species of *Heterodermia* from Central Himalaya in India is described. In addition, *Anisomeridium polypori* is reported for the first time from India and *Flavopunctelia borrerioides* is shown to occur in the Central Himalaya.

Key words: *Anisomeridium*, Central Himalaya, *Flavopunctelia*, *Heterodermia*, Uttarakhand

Introduction

As part of a study of lichens colonizing monuments of Kumaun Himalaya, we collected lichens in and around Ek Hathiya, Syahi Devi and Kosi Katarmal Sun temples. Among the samples was a fertile and lobulate specimen of *Heterodermia* Trevis. (1868: 613), which was morphologically close to *H. dissecta* (Kurok.) D.D. Awasthi (1973: 113) and *H. koyana* (Kurok.) Elix (2010: 61), but differs from those in several characters and is being described here as a new species. In addition to this, we also found *Anisomeridium polypori* (Ellis & Everh.) M.E. Barr (1996: 76) new to India, colonizing plastic sheets, along with range extension of *Flavopunctelia borrerioides* Kurok. (1999: 26) which was previously known from the Western Himalaya only.

Materials and Methods

The study is based on lichen specimens collected from Ek Hathiya, Syahi Devi and Kosi Katarmal Sun temples and lodged in ALM. Specimens have been examined using standard microscopical techniques and were hand cut sectioned under Digi-Zoom binocular microscope (OLYMPUS SZ2-ILST). All measurements were made on material mounted in water and lactophenol cotton blue (LCB). Spot test reactions were carried out on hand cut sections of thalli and ascocarps using an Olympus CX21iLEDFS1 compound microscope. Secondary metabolites were identified by TLC as described in Orange *et al.* (2001) using solvent system A.

Results

Anisomeridium polypori (Ellis & Everh.) M.E. Barr (1996: 76)

Diagnostic characters:—Thallus inconspicuous, pale greenish-grey, perithecia subconical to ± globose, with scarcely differentiated involucellum, ascospores 3-septate, clavate-fusiform, 14–20 × 4.5–5.0 µm.

Distribution and Ecology:—Cosmopolitan; known from Europe, Africa, America, Australia (including Tasmania) and Asia (Coppins *et al.* 2009). Aptroot (1999) mentioned it as a broad niched species colonizing bark, dead wood, dead hepatics, dead polypores and rocks. We report it here as new to India, where it is found growing on plastic sheets in the Central Himalaya.

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References

- Aptroot, A. (1999) Notes on taxonomy, distribution and ecology of *Anisomeridium polypori*. *Lichenologist* 31: 641–642.
<http://dx.doi.org/10.1006/lich.1999.0233>
- Awasthi, D.D. (1973) On the species of *Anaptychia* and *Heterodermia* from India and Nepal. *Geophytology* 3: 113–116.
- Barr, M.E., Huhndorf, S.M. & Rogerson, C.T. (1996) The Pyrenomycetes described by J.B. Ellis. *Memoirs of the New York Botanical Garden* 79: 1–137.
- Choisy, M. (1952) Catalogue des lichens de la région lyonnaise. Fasc. 9. *Bulletin Mensuel de la Société Linnéenne de Lyon* 21: 165–180.
- Coppins, B.J., James, P.W. & Orange, A. (2009) *Anisomeridium*. In: Smith, C.W., Aptroot, A., Coppins, B.J., Fletcher, A., Gilbert, O.L., James, P.W. & Wolseley, P.A. (eds.) *The lichens of Great Britain and Ireland*. The British Lichen Society, Natural History Museum Publications, pp. 148–150.
- Culberson, W.L. (1966) Chemistry and taxonomy of the lichen genera *Heterodermia* and *Anaptychia* in the Carolinas. *Bryologist* 69: 472–487.
<http://dx.doi.org/10.2307/3240580>
- Divakar, P.K. & Upreti, D.K. (2005) *Parmelioid lichens in India*. Bishen Singh Mahendra Pal Singh, Dehradun, 488 pp.
- Elix, J.A. (2010) Additional lichen records from Australia 72. *Australasian Lichenology* 66: 60–69.
- Elix, J.A. (2011a) Three new species of *Heterodermia* (Physciaceae: Ascomycota) from Australia. *Australasian Lichenology* 68: 16–21.
- Elix, J.A. (2011b) Further new species and new records of *Heterodermia* (Physciaceae: Ascomycota) from Australia. *Australasian Lichenology* 69: 12–24.
- Esslinger, T.L. (1978) Studies in the lichen family Physciaceae. II The genus *Phaeophyscia* in North America. *Mycotaxon* 7: 283–320.
- Follmann, G. (1973) Beobachtungen zum Vorkommen spanischer Flechten. I. Der Formenkreis um *Ramalina siliquosa* (Huds.) A.L. Smith. *Philippia* 2: 3–12.
- Hale, M.E. (1974) New combinations in the lichen genus *Parmotrema* Massalongo. *Phytologia* 28: 334–339.
- Hale, M.E. (1984) *Flavopunctelia*, a new genus in the Parmeliaceae (Ascomycotina). *Mycotaxon* 20: 681–682.
- Kurokawa, S. (1999) Notes on *Flavopunctelia* and *Punctelia* (Parmeliaceae), with description of four new species. *Bulletin of the Botanic Gardens of Toyama* 4: 25–32.
- Nash III, T.H., Ryan, B.D., Gries, C. & Bungartz, F. (2002) *Lichen Flora of the Greater Sonoran Desert Region, Vol. I*. Lichens Unlimited: Arizona State University, USA, 532 pp.
- Nylander, W. (1857) Enumération générale de lichens, avec l'indication sommaire de leur distribution géographique. *Mémoires de la Société Impériale des Sciences Naturelles de Cherbourg* 5: 85–146.
- Orange, A., James, P.W. & White, F.J. (2001) *Microchemical methods for the identification of lichens*. British Lichen Society, London, 101 pp.
- Swinscow, T.D.V. & Krog, H. (1976) The genera *Anaptychia* and *Heterodermia* in East Africa. *Lichenologist* 8: 103–138.
<http://dx.doi.org/10.1017/s0024282976000212>
- Thell, A., Herber, B., Aptroot, A. & Adler, M.T. (2005) A preliminary phylogeographic study of *Flavopunctelia* and *Punctelia* inferred from rDNA ITS-sequences. *Folia Cryptogamica Estonica* 41: 115–122.
- Trevisan, V. (1868) Sul genere Dimelaena di Norman. *Atti della Società Italiana di Scienze Naturali* 11: 604–630.
- Vězda, A. (1978) *Folia geobotanica et phytotaxonomica*. 20: 1–207.
- Wei, J.C. & Jiang, Y.M. (1986) *Lichens of Xizang (Tibet)*. Science Press, Beijing, 130 pp.
- Zschacke, H. (1934) Rabenhorst's Kryptogamen-Flora, Epigloeaceae, Verrucariaceae und Dermatocarpaceae. 9(1,1): 481–695.