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Short Communication

Two New Records of Lichens of Thelotremoid *Graphidaceae* (Ascomycota: Ostropales) from Thailand

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ABSTRACT

Thelotremoid Graphidaceae belong to the largest family of tropical lichens worldwide. This paper presents two species, *Astrochapsa pulvereodisca* (Hale) Parmen, Lücking & Lumbsch and *Pseudotopediopsis longispora* Papong, Lücking & Parmen as new record for Thailand.

Keywords: new record, lichens, Graphidaceae, Thailand

1. INTRODUCTION

Graphidaceae constitutes the largest family of crustose tropical lichens with over 2000 accepted species [1-8]. Thelotremoid taxa are mostly found in subfamily Graphidoideae in two tribes, Ocellularieae and Thelotremateae. Recently, the first author started a project on the diversity of thelotremoid *Graphidaceae* was reported in 2014 [9]. Thelotremoid Graphidaceae have various phenotypic characters that have been used for classification at the genus and species levels, including thallus, photobiont, apothecioid, solitary ascomata either having or lacking a columella and lateral paraphyses, and amyloidity of ascospores as well as secondary chemistry [8]. The preliminary studies in Thailand have provided important

baseline data for the distribution of species and have indicated that numerous additional species can be expected [10-11]. This paper adds two species to the lichen biota of Thailand.

2. MATERIAL AND METHODS

This study is mainly based on new collections made by the authors deposited in MSUT and F. Sections of thalli and apothecia were cut using a razor blade and examined in water, a solution of KOH, and Lugol's solutions using a ZEISS Axioscope 2 plus compound microscope. HPTLC was performed with solvent systems A and C [12-13].

3. RESULTS AND DISCUSSIONS

New records of thelotremoid *Graphidaceae* lichen from Thailand

3.1 *Astrochapsa pulvereodisca* (Hale) Parmen, Lücking & Lumbsch

in Parmen *et al.* PLoS ONE 7(12): e51392 (2012) [14]

Bas.: *Thelotrema pulvereodiscum* Hale, Bull. Br. Mus. Nat. Hist., Bot. 8(3): 268 (1981) = *Chapsa pulvereodisca* (Hale) Rivas Plata & Mangold in Rivas Plata *et al.*, Lichenologist 42: 183 (2010) [17].

Thallus corticolous, whitish gray, 8-10 cm broad, thin, dull, fissuring with age; cortex very thin, 5-7 μm ; algal layer continuous, 10-15 μm ; medulla 10 μm or less, mostly hypophoeodal; apothecia dispersed, chroodiscoid, round to irregularly elongate, 0.8-1.2 mm thalline rim low, suberect, becoming sorediate at tips and on the inner side, exciple free, thick, partially filling the disc, periphysoids present; disc blackish or white pruinose; hymenium 60-100 μm ; spores brown, muriform, 4-5 \times 9-10 μm , 1-2 \times 3-4 loculate, I-.

Secondary chemistry: Sticic and constictic acids.

Notes: This species can be recognised by dispersed, chroodiscoid, round to irregularly elongate apothecia. The disc is blackish or white pruinose and the ascospores are brown, muriform, non-amyloid. The species was previously known from Sri Lanka [16].

Specimen examined:-Thailand:

Ubon Ratchathani Province, Na Charueng Distinct, Phu Chong Na Yoy National Park, Hui Lung Waterfall, 14° 26' N, 105° 16' E, Alt. 365 m, dry evergreen forest, on bark, 11 Jan. 2012, K. Papong & W. Klinhom 8520 (MSUT, F).

3.2 *Pseudotopediopsis longispora*

Papong, Lücking & Parmen in Papong *et al.* Phytotaxa 189: 232-244 (2014) [10]

The description was found in Papong *et al.* [10]. Thai collection was found ascospores 20-22 septate, hyaline, 100-125 \times 17.5-18 μm , I+ blue.

Secondary chemistry: No substances detected by TLC.

Notes: The characteristics of this species are the long, transversely septate ascospores, which are unique for the genus. Other similar species was reported in Parmen *et al.* [15]. The species was hither to known only from New Caledonia [10].

Specimen examined:-Thailand:

Satun province, La-Ngu district, Islands of Andaman sea, Mu Ko Tarutao National Park, Lu Du waterfall, 6° 39' N, 99° 37' E, Alt. 30 m, Tropical rainforest, on bark, 28 Jan. 2014, Papong, Lumbsch & Parmen 9411 (MSUT, F).

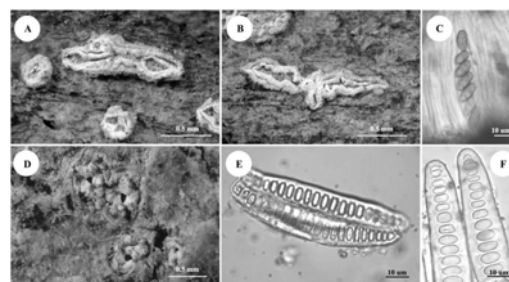


Figure 1. Morphological and anatomical; A-B. Habitat ascoma of *Astrochapsa pulvereodiscus*, C. brown, muriform ascospores, D. Habitat ascoma of *Pseudotopediopsis longispora* and E-F. Ascospores transversely septate with lens-shaped lumina.

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REFERENCES

- [1] Rivas Plata E., Lücking R. and Lumbsch H.T., *Fungal Divers.*, 2012; **52**: 107-121.
- [2] Lücking R., Tehler A., Bungartz F., Rivas Plata E. and Lumbsch H.T., *Am. J. Bot.*, 2013; **100**: 844-856.
- [3] Lücking R., Johnston M.K., Aptroot A., Kraichak E., Lendemer J.C., Boonpragob K., Cáceres M.E.S., Ertz D., Ferraro L.I., Jia Z.F., Kalb K., Mangold A., Manoch L., Mercado-Díaz J.A., Moncada B., Mongkolsuk P., Papong K., Parnmen S., Peláez R.N., Poengsungnoen V., Rivas Plata E., Saipunkaew W., Sipman H.J.M., Sutjaritturakan J., Van Den Broeck D., Von Konrat M., Weerakoon G. and Lumbsch H.T., *Phytotaxa*, 2014; **189**: 7-38.
- [4] Cáceres M.E.S., Aptroot A., Parnmen S. and Lücking R., *Phytotaxa*, 2014; **189**: 87-136.
- [6] Mercado-Díaz J.A., Lücking R. and Parnmen S., *Phytotaxa*, 2014; **189**: 186-203.
- [7] Van Den Broeck D., Lücking R. and Ertz D., *Phytotaxa*, 2014; **189**: 325-330.
- [8] Lumbsch H.T., Kraichak E., Parnmen S., Rivas Plata E., Aptroot A., Cáceres M.E.S., Ertz D., Feuerstein S.C., Mercado-Díaz J.A., Staiger B., Van den Broeck D. and Lücking R., *Phytotaxa*, 2014; **189(1)**: 39-51.
- [9] Kraichak E., Parnmen S., Lücking R., Rivas Plata E., Aptroot A., Cáceres M.E.S., Ertz D., Mangold A., Mercado-Díaz J.A., Papong K., Van Den Broeck D., Weerakoon G. and Lumbsch H.T., *Phytotaxa*, 2014; **189**: 52-81.
- [10] Papong K.B., Lücking R., Kraichak E., Parnmen S., Von Konrat M. and Lumbsch H.T., *Phytotaxa*, 2014; **189(1)**: 204-231.
- [11] Homchantara N. and Coppins B.J., *Lichenologist*, 2002; **34**: 113-140.
- [12] Papong K., Boonpragob K., Mangold A., Divakar P.K. and Lumbsch H.T., *Lichenologist*, 2010; **42**: 131-137.
- [13] Arup U., Ekman S., Lindblom L. and Mattsson J.E., *Lichenologist*, 1993; **25**: 61-71.
- [14] Culbertson C.F., *J. Chromatogr.*, 1972; **72**: 113-125.
- [15] Parnmen S., Lücking R. and Lumbsch H.T., *PLoS ONE*, 2012; **7(12)**: e51392.
- [16] Hale M.E., *Bulletin of the British Museum (Natural History), Botany series* 19818; 227-332.
- [17] Rivas Plata E., Lücking R., Sipman H.J.M., Mangold A. and Lumbsch H.T., *Lichenologist*, 2010; **42**: 139-185.