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First report of a fertile specimen of *Xanthoparmelia pseudocongensis* Hale from India

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ABSTRACT

The previous documented records on specimens of *Xanthoparmelia pseudocongensis* Hale were all sterile throughout the country. A fertile specimen of this lichen is being reported for the first time from India. It is characterized by its distinct apothecia with spores measuring (7.5-) 10-12.5 x 5-7.5 µm.

Key words: *Xanthoparmelia*, lichen, fertile, Uttarakhand

INTRODUCTION

During a recent lichen survey trip in and around Tota Devalaya monument, Bageshwar district, Uttarakhand, one of the authors (KC) encountered a fertile specimen of *Xanthoparmelia pseudocongensis* Hale colonizing nearby boulders of the temple. The species was previously reported from Andhra Pradesh, Madhya Pradesh and Rajasthan in India by various workers (Divakar and Upreti 2002, 2005; Awasthi 2007; Bodicherla *et al.* 2013) in its sterile state. In the present manuscript we are reporting this species in its fertile state for the first time from India and also as a new report for the Uttarakhand.

MATERIALS AND METHODS

The lichen sample was collected from in and around the vicinity of Tota Devalaya, a historical monument nested in Bageshwar District, Uttarakhand State. Macroscopical examination was carried out using a dissecting microscope (OLYMPUS SZ2-ILST) and microscopical studies of handmade sections were made using a CX21iLEDFS1 microscope. All the measurements were made in tap water. Spot test reactions on thalli, medulla and fruiting bodies were tested with the standard reagents, 10% potassium hydroxide (K), sodium hypochlorite (C) and *para* phenylenediamine (Pd). Thin Layer Chromatography was performed as per Orange *et al.* (2001). The specimen is deposited in the herbarium of Punjabi University, Patiala under PUN.

Taxonomic Detail

***Xanthoparmelia pseudocongensis* Hale, *Mycotaxon* 30: 327 (1987)**

Fig. 1 (A-D)

Thallus foliose, tightly adnate, 5 cm in diam., dichotomously lobate; lobes short, plane to sub convex, contiguous to imbricate, 0.3-01 mm wide, smooth to crenate, eciliate. Upper surface epruinose, light yellow-green but darkening centrally, smooth, shiny, isidiate. Isidia cylindrical, unbranched, black tipped. Medulla white. Lower surface black, rhizinate. Rhizines black, simple. Apothecia rare, few, adnate, 1-2 mm in diameter. Disc brown to dark brown. Margin smooth. Asci clavate, 8-spored. Ascospores hyaline, simple, ellipsoid, (7.5-)10-12.5 x 5-7.5 µm.

Chemistry: Spot tests: Medulla K+ yellow, C-, P+ yellow-orange. **Secondary metabolites:** usnic acid stictic acid, constictic, and norstictic acids.

Specimen Examined: India: Uttarakhand, Bageshwar district, forest near Tota Devalaya, 29°53'737" N, 0.79°57'779" E, 1500 m, on rock, 25 Nov. 2015; Krishna Chandra, Acc No 7978 (PUN) dated 22-8-16.

Ecology and distribution: *Xanthoparmelia pseudocongenesis* is a cosmopolitan species confined to acidic rocks growing in open arid habitat and has been earlier reported from Africa, North and South America by Nash *et al.* (2001). From India the species has been mapped and reported from Madhya Pradesh and Rajasthan districts by Divakar and Upreti (2002) and Andhra Pradesh by Bodicherla *et al.* (2013), at elevations between 1000-1400 m.

In the present study, the taxon is found growing on rocks at an elevation of 1500 m, in association with species of *Buellia* De Not., *Caloplaca* Th. Fr., *Candelaria* A. Massal., *Chrysothrix* Mont., *Heterodermia* Trevis., *Lecanora* Ach., *Lepraria* Ach., *Parmotrema* A. Massal. and *Phaeophyscia* Moberg.

Remarks: *Xanthoparmelia pseudocongensis* closely resembles *X. congensis* (B. Stein) Hale in its lobe size and some other

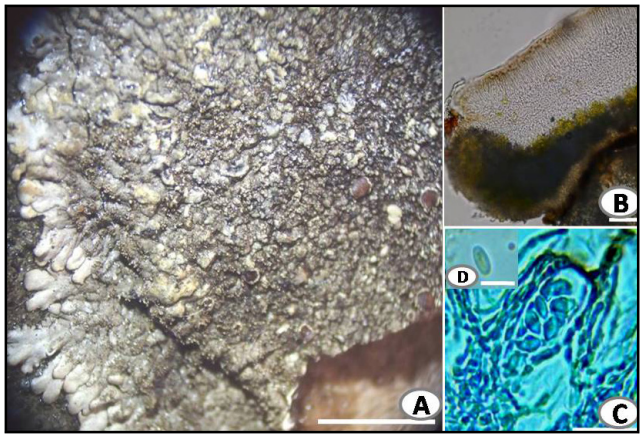

Fig.1 A- Thallus of *Xanthoparmelia pseudocongenesis* with apothecia (Scale = 3 mm). B- Transverse section of apothecia (Scale = 50 µm). C- Ascospores inside ascus (Scale 20 µm). D- Ascospore in inset (Scale 20 µm).

morphological characters like centrally black at lower side and medullary chemistry, but differs from it in having black tipped cylindrical isidia. From yet another lichen species, *X. conspersa* (Ach.) Hale, the presently examined collection differs in being loosely adnate to the substratum and having 0.5-5 mm wide lobes.

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