Physopella hiratsukae (Syd.) Cummins & Ramachar - A New Species Record of Rust fungus from India

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ABSTRACT

During a routine survey of Western Ghat regions of Maharashtra, a rust species naming *Physopella hiratsukae* Cummins & Ramachar was encountered from Malshej Ghat of Thane Dist. of Maharashtra which constitutes a new species record for India.

Key Words: *Bambusa arundinacea* Willd., India, *Physopella hiratsukae*, Rust, Western Ghat.

INTRODUCTION

A survey was conducted during the month of October 2012 to study the distribution and diversity of the microfungi of Malshej Ghat of Thane District, in connection with the project entitled "Foliicolous Fungi of Maharashtra". The authors collected the living leaves of bamboo heavily infected with yellowish orange rust pustules on the ventral surface of leaves (Fig 1 A). After detail examination and lab study, the fungus was identified as *Physopella hiratsukae* (Syd.) Cummins & Ramachar 1958. Genus *Physopella* was established by Arthur (1906). There are 60 species and 3 Orthographic variant described so far (Anon 1). Near about seven species namely *P. ampelopsidis* Dietel & Syd. (Subramaniam & Ramakrishnan 1956); *P. clemensiae* Arthur & Cummins (Malavya & Jain, 1981); *P. elephantopsidis* Mundk. & Thirum. (Sathe 1965), *P. oplismeni* (Patil & Thirumalachar 1971); *P. stakmanii* (Sathe 1965); *P. stereospermi* (Sathe 1965); *P. vernoniae* Ramakr. (Ramachar & Bhagyanarayana, 1976) are reported from India. (Bilgrami 1981). Detailed morphological study and review of pertinent literature revealed that this *P. hiratsukae* has not been reported from the Indian subcontinent so far (Bilgrami *et al.* 1991; Jamaluddin 2004, Maheswari *et al.* 2012).

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MATERIALS AND METHODS

Infected Bamboo leaves were collected and brought to the laboratory for further studies. Free hand sections were taken along the rust symptoms and mounted in hydrous Lactophenol cotton blue. For morphotaxonomic studies and photomicrograph Nikon eclipse 50 i Microscope connected with Nikon DS- Fi 1 camera were used.

TAXONOMIC DESCRIPTION

Physopella hiratsukae (Syd.) Cummins & Ramachar, *Mycologia*, 50 (5): 742, 1958 (Fig 1).
Angiopsora hiratsukae Syd., *Ann. Mycol.* 34: 70, 1936
Fungi, *Basidiomycota, Pucciniomycetes, Incertae sedis, Pucciniales, Phakopsoraceae* (Anon).
Aecia unknown. Uredia amphigenous, hyaline to brownish, abundant, round, sub spherical with incurved paraphyses, often forming a psuedoperidium with the tips of the paraphyses projecting in to the sorus, wall dorsally and apically thickened, 35-50 x 8-12 µm wide (fig 1 C); spores 18 – 28 x 15-22 µm, ellipsoid or ovoid, wall 1-1.5 µm thick, hyaline or pale brown, echinulate, pores obscure, scattered (fig. D & E). Telia blackish brown, covered by the epidermis, forming lenticular sori,

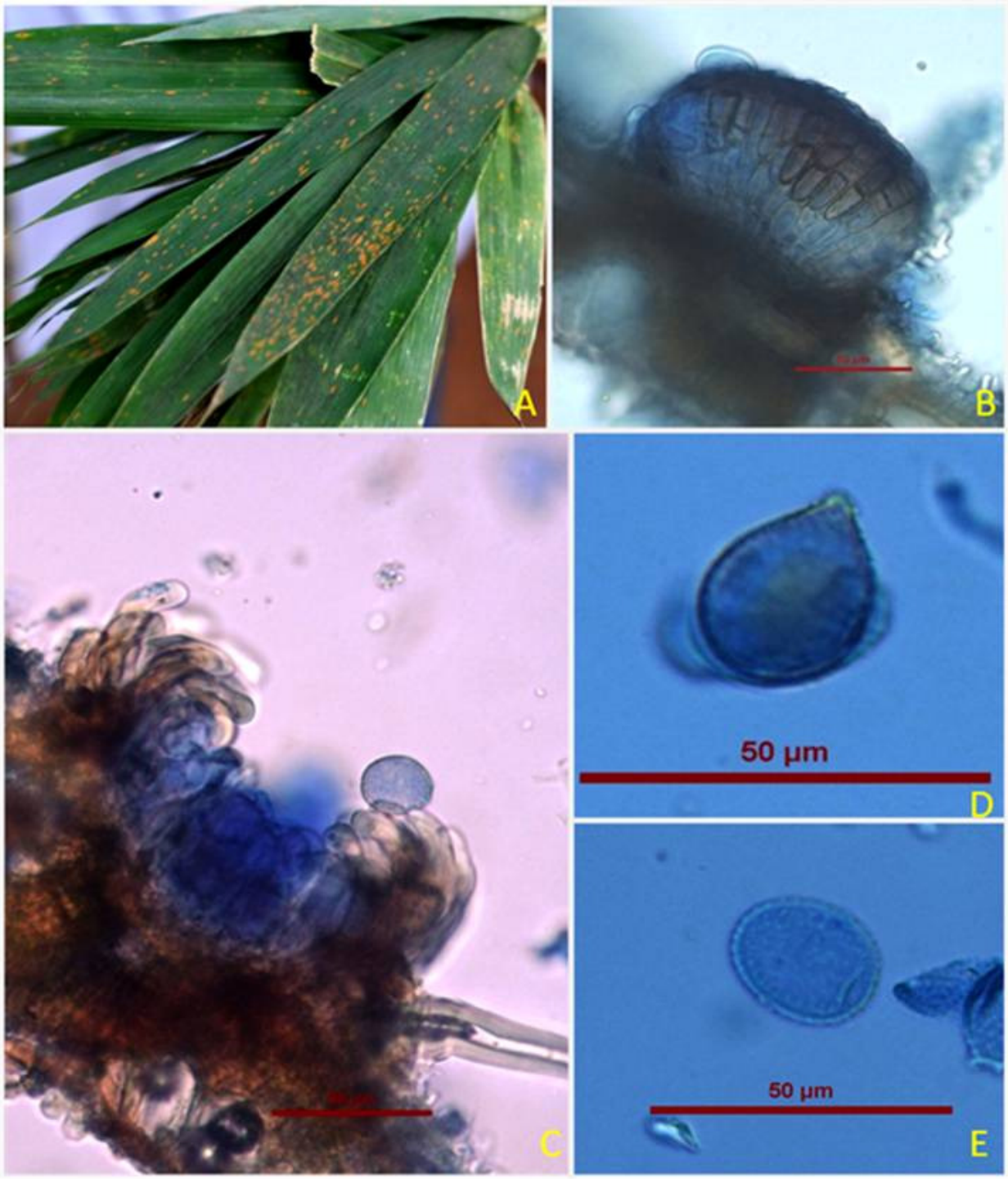

Fig.1 - *Physopella hiratsukae* (Syd.) Cummins & Ramachar: A. Rust symptoms on Bamboo leaves; B. Cross section of leaf showing telium with two – three layers of teliospores (X400); C. Cross section of leaf showing Uredium having peripheral paraphyses surrounding urediniospores (X400); D&E. Hyaline to pale brownish urediniospores (X400).

tardily dehiscent; spores 15- 20 µm long and 13-16 µm wide, mostly cuboid or oblong, produced in chains of 2 or 3, wall yellowish or pale brown 1 µm thick (Fig. 1B).

MATERIAL EXAMINED

Leaves of *Bambusa arundinacea* Willd, Fam. Poaceae, Malshej Ghat, Thane District (MH), 20.10.2012, coll. R. Dubey. The host specimen has been housed in Herbarium of Botanical survey of India, WRC- Pune with collection No. 201183, Accession No.BSI- 132632.

Detail studies reveal that this species of *Physopella* has not yet been reported from India till now. Thus, it constitutes a new species record for India and moreover till now no there is no report of *Physopella hiratsukae* on *Bambusa arundinacea* Willd. Thus, it also constitutes a new host record from India.

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