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Department of Botany,
University of Calcutta,
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Two new Powdery mildew on medicinal plants

V. K. YADAV*¹ AND N. D. SHARMA²

¹Department of Plant Pathology, Jawaharlal Nehru Krishi Vishwa Vidyalyaya, College of Agriculture, Ganj Basoda 464221, Madhya Pradesh

² 21, Kundan Residency, Mandla Road, Tilhari, Jabalpur 482 021, Madhya Pradesh

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To new Powdery mildew fungi viz., *Sphaerotheca* sp. and *Oidium uwebraunii* on two medicinal plants viz., *Spilanthes calva* and *Phyllanthus amarus* have been reported.

Key words: Powdery mildew, medicinal plants, *Sphaerotheca* sp., *Oidium uwebraunii*

Powdery mildews are polycyclic diseases that can impair photosynthesis, stunt growth and increase the rate of senescence of host tissue. The diseases they cause may be slight or in some situations, if left untreated, they may result in severe economic losses on crops. Unlike most fungal pathogens, powdery mildew fungi tend to grow superficially, on plant surfaces. During the growing season, hyphae are produced epiphyllous and hypophyllously, although some species are restricted to one leaf surface only. Infections can also occur on stems, flowers, or fruit. Specialized absorption cells, termed haustoria, extend into the plant epidermal cells to obtain nutrition. While most powdery mildew fungi produce epiphytic mycelium.

In Chhattisgarh state, powdery mildew disease appears on many hosts every year, in mild to severe form and causes considerable losses. Some times severe attack results in distortion of affected foliage leading to defoliation. Infection of flowering buds results in reduced fruit setting and poor yields. During survey work diseased leaves collected and packed in alcohol sterilized polythene bags and brought into the laboratory for microscopic examination and identification. Previously, identification was based largely on the teleomorph and the morphology of the cleistothecium and its appendages,

but the morphology of structure is not as conserved as originally assumed. With the new taxonomy, identification of powdery mildews now also requires attributes of the anamorph, so that it incorporates characteristics of the whole fungus. A major distinction for identification is whether conidia are produced in chains or singly. The mycelium, conidiophore and conidia were mounted in plane water by pressing the cello tape on diseased portion. The hyphae, conidiophore, conidia and its germination was presented by making camera lucida drawing. In the present investigation a taxonomic study did on *Spilanthes calva*. All these collections have been described using characters of current taxonomic importance in defining the imperfect stages of erysiphaceae in modern sense. In tropics they mostly occur in conidial states and named on host basis. But this criteria is of limited use since one species may infects several hosts. In characterizing collections of powdery mildew fungi we have used Blumer (1967) conidiophore types based on the work and terminology of Jaczewski (1927) and Brundza (1933) and A & B units of conidiophore in the sense of Hammet and Manners (1973).

Sphaerotheca* sp. on *Spilanthes calva

Mycelium amphiphyllous, hyphae upto 6.46 mm in dia., appresoria nipple shaped. Conidiophores euoidium type, A & B units of 3 to 6 cells, 90.64 - 161.5 X 13.59 - 19.77 mm, av. 136 X 16.75 mm.,

*Corresponding author : vijay3426@yahoo.com

foot cell 41.2 - 61.8 X 9.06 - 12.36 mm, av. 52.18 X 11.67 mm. Conidia broadly ovate, 28.8 - 37.08 X 16.48 - 21.42 mm, av. 34.92 x 19.51 mm. germ tube lateral (1-4) at times lobed apically (Fig.1).

Habitat:- On leaves of *Spilanthes calva* (Asteraceae), 28.X.2006, Jora Village, Raipur Leg. V. K. Yadav. HCIO Herb No. 46,949.

Oidium uwebraunii* on *Phyllanthus amarus

Hirata (1942,1955) mentioned 10 spp under the genus: *Phyllanthus* on which *Leveillula taurica*, *Erysiphe cichoracearum* and *Microsphaera* sp have been recorded. The changed name (and earlier name) for powdery mildew on *Phyllanthus* will be: (present collection) *Microidium phyllanthi* (J. M.Yen) To-anun & S. Takam. in Braun & Cook in "Taxonomic manual of Erysiphales" CBS, BS-11-2012.

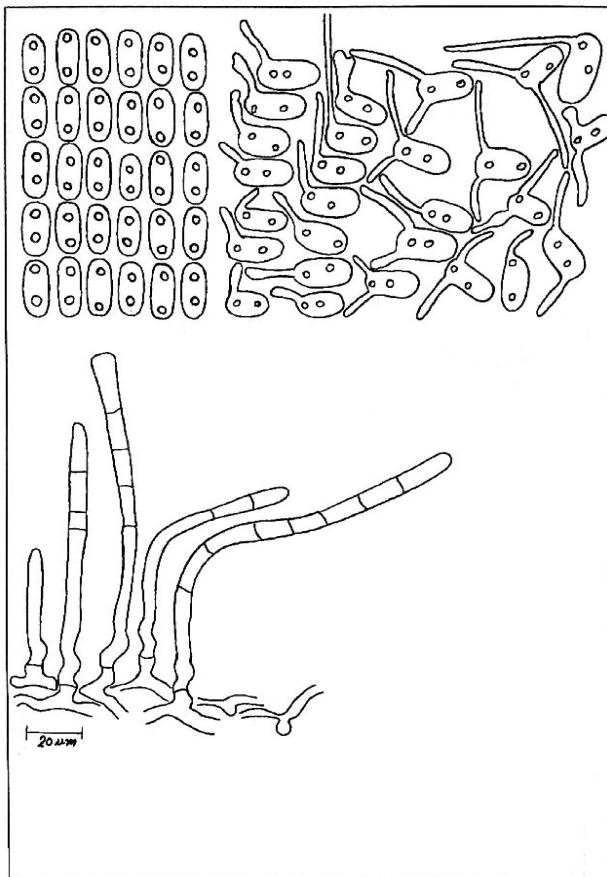


Fig.1: Mycelium, conidia, conidial germination and variability in conidiophores of *Sphaerotheca* sp.

Several spp. placed under it as synonym:

= *O. phyllanthi* Narayan. & Ramakr. 1969

= *O. ramakrishnani* Hosag. 1991 (Sydowia 43:29)

= *O. phyllanthi* var. *reticulati* (as *reticulatus*) N.

Ahmad, Sarbhoy, Kamal & D. K, Agrawal 2004 (*Indian Phytopath.* 57 (4): 479: 2004)

The characters are unique of this powdery mildew: Conidiophore narrow, twisted (spirally) base, conidia catenate, doliform, cylindrical slight variations may be there in different host (or environmental). I am of the opinion that *Oidium uwebraunii* is also a synonym.

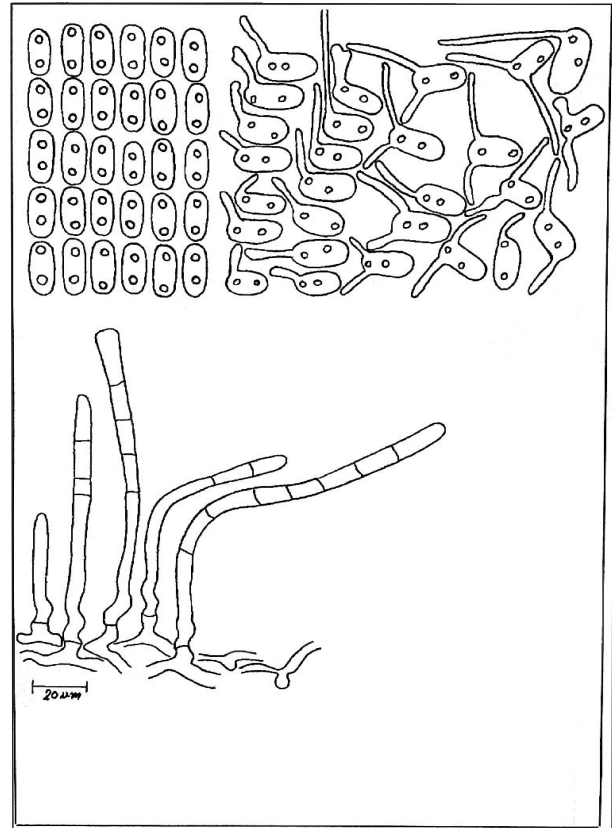


Fig. 2: Conidia, Conidial germination and conidiophores of *Oidium uwebraunii*

Mycelium amphiphylous, hyphae upto 3.63 mm in diam., appresoria distinctly lobed. Conidiophores euoidium type, flexuous, A & B units of 1 to 8 cells, 61.8 - 144.2 X 6.18 - 8.24 mm, av. 114.90 X 7.09 mm., foot cell spirally curved at lower portion near the basal septum 24.72 - 82.4 X 4.12 - 6.18 mm, av. 54.93 X 4.57 mm. Conidia cylindric to doliform, 16.48 - 26.78 X 4.12-14.42 mm, av. 20.81 x 9.58 mm. germ tubes subterminal, straight, cylindrical (Fig.2).

Habitat:- On leaves of *Phyllanthus amarus* (Euphorbiaceae), 27.I.2006, Medicinal Garden, IGAU, Raipur Leg. V. K. Yadav. HCIO Herb No. 46,908

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