TAXONOMY OF NEW AND INTERESTING POWDERY MILDEWS (ERYSIPHALES) FROM ANDHRA PRADESH

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(Accepted December, 1998)

A systematic study of the powdery mildews (Erysiphales) of Andhra Pradesh is made. Five species belonging to three different genera of the Erysiphales are recorded in this paper. Oidium gymnosporii and O. pachygonii are described as new taxa. Microsphaera russellii, Sphaerotheca papaveris and Oidium schmiedeknechtii are new records to India.

Key Words: Taxonomy-Powdery mildews (Erysiphales) Andhra Pradesh.

Powdery mildews belonging to the family Erysiphaceae of the order Erysiphales are biotrophic parasites of Angiospermic plants. Systematic studies on Powdery mildews from India in general and from Andhra Pradesh in particular are meagre. The earliest works on powdery mildews from Andhra Pradesh was made by Salam and Rao (1958) and Rao (1961, 1962). After a gap of nearly two decades from 1980 onwards, the study of powdery mildews has been restarted from Andhra Pradesh and several papers were published by Ramachar & Bagyanarayana (1980), Bagyanarayana & Ramachar (1983), Bagyanarayana & Braun (1986), Bagyanarayana et al. (1988), Bagyanarayana (1989), Bagyanarayana and Jagadeswar (1991) and Bagyanarayana et al. (1996).

During a survey of powdery mildews from Andhra Pradesh many powdery mildews on various angiospermic hosts were collected. The identification of the powdery mildew taxa was done based on the taxonomic criteria and morphological characters enlisted by Boeswinkel (1980) and Braun (1987). Fungi of India manuals by Butler & Bisby rev. by Vasudeva (1960), Rangaswamy (1970), Bilgrami et al. (1979, 1981, 1991) and Mukerji & Bhasin (1986) were regularly referred. Of the 5 taxa two are new to science, three are new to India. All the specimens are deposited in the Mycological Herbarium, University College of Science, Osmania University, and the type specimens in the Herbarium Cryptogamiae Indiae Orientalis (HCIO), New Delhi.

Oidium gymnosporii sp. nov. (Fig. 1)

Maculae infectus foliosis, epiphyllis, mycelio hyalino, celeriter effusae, hyphiis crassa, appressorio lobatis; conidiophora erecta, cylindraceis, 62-108.5x9.3-12.4 μm, cellulo basalis erecta 31-46.5x6.2-9.3 μm; conidio catenatis, cylindraceis, ellipsoideis-ovoideis, 21.7-31x9.3-18.6 μm, fibrosin bodies nullis.

Infection spots on leaves, epiphyllous, mycelium hyaline, effused or in patches, branched, 4.6-6.2 μm wide, appressoria lobed: conidiophores erect, cylindrical 62-108.5x9.3-12.4 μm, foot-cells straight, 31-46.5x6.2-9.3 μm, foot cell followed by 1-5 shorter cells, conidia in chains, cylindrical, ellipsoid-ovoid, 21.7-31.0x9.3-18.6 μm, fibrosin bodies absent, germ tube with lobed appressorium at the tip.


Oidium pachygonii sp. nov. (Fig.2)

Maculae infectus amphigeniis, epiphyllis, mycelio hyalino, celeriter effusae; hyphiis ramosis, 4.6-6.2 μm crassa, appressorio lobatis; conidiophora erecta, cylindraceis, 62-108.5x9.3-12.4 μm, cellulo basalis erecta 31-46.5x6.2-9.3 μm; conidio catenatis, cylindraceis, ellipsoideis-ovoideis, 21.7-34x9.3-12.4 μm fibrosin bodies nullis.

Received August, 1998
Figures 1-5. Fig-1: *Oidium gymnasporii* sp. nov., Fig-2: *Oidium pachygonii* sp. nov., Fig-3: *Microsphaera russellii* Clint, Fig-4: *Sphaerotheca papaveris* Simonian, Fig-5: *Oidium schmiedeknechtii* U. Braun

Taxonomy of new and interesting powdery mildews

Infection spots on leaves, amphigenous, effused or in patches, mycelium hyaline, hyphae branched, septate, 4.5-6.2 μm wide, appressoria lobed; conidiophores erect, cylindrical, 1-4 septate, 62.86-86.2x6.2-9.3 μm, conidia in chains, cylindrical, ellipsoid-ovoid, 21.7-34x9.3-12.4 μm, fibrosin bodies absent, germ tube with lobed appressorium at the tip.


The host genus *Pachygone ovata* belongs to the family *Menispermaceae*. As per Braun (1996 personal communication) the Oidium species on *Pachygone* belongs to the *Psuedooidium* type. Further, according to Uwe Braun (1987) and Fungi of India manuals by Bilgrami et al. (1979) Mukerji & Jayanthi Bhasin (1986), Butler & Bisby (1960), Sarbboy et al. (1977-81), Rangaswamy et al. (1970) so far there is no report of any *Oidium* species on the host genus *Pachygone* of the host family *Menispermaceae*. Therefore this is being reported as a new species.

*Microsphaera russellii* Clint, in Peck, Rep. N.Y. Stat. Mus 26: 80. 1874 (Fig.3)


Infection spots on leaves, amphigenous, diffused or in patches, evanescent to persistent, mycelium hyaline, hyphae 3.1-6.2 μm wide, appressoria multilobed; conidiophores erect, slender, 3-4 celled, 46.5-148.6x4.6-9.3 μm, foot cell is the longest cell, 24.8-58.9x4.6-9.3 μm, foot cell cylindrical, conidia formed singly, ellipsoid-ovoid, 24.8-37.2x12.4-18.6 μm, germ tube is chichoracearum type.

*Microsphaera rusellii* was first reported on the host genus *Oxalis corniculata* from North America in the year 1874. So far there is no report of *Microsphaera rusellii* from India. Therefore this is being reported for the first time from India.

The cleistothecia are covered with mycelioid appendages which show dichotomous branching towards their apex. Usually 6-8 asci are present in the cleistothecia.

*Sphaerotheca papaveris* Simonian, Mikol. Fttop. 18(6); 465. 1984.

= *Sphaerotheca macularis f. papaveris* Simonian, Tr. BIN AN Arm. SSR 13: 151.1962. (Fig. 4).

Infection spots on leaves, amphigenous, dense, covering the entire lamina, white, evanescent to persistent, mycelium hyaline, hyphae 3.1-6.2 μm wide, appressoria lobed; conidiophores erect, cylindrical, 62-108.5x12.4-18.6 μm, foot-cell cylindrical, followed by two shorter cells, 49.6-58.9x6.2-9.3 μm; conidia in chains, cylindrical-ellipsoid, 24.8-40.3x9.3-18.6 μm, fibrosin bodies present.

*Sphaerotheca papaveris* was first reported on the host genus *Oxalis corniculata* from North America in the year 1874. So far there is no report of *Microsphaera rusellii* from India. Therefore this is being reported for the first time from India.

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*cleistothecia* scattered to subgregarious, 83.7-124.9 μm in diam, cells irregularly polygonal, 10.8-24.8 μm diam, appendages 8-10, in the lower half, mycelioid, simple, as long as the cleistothecial diam, some times longer, thin walled, smooth, septate, hyaline to coloured, 4.5-7.7 μm wide, ascus ellipsoid-ovoid, sessile, 65.1-80.6 μm, 8 spored, ellipsoid-subglobose, 15.5-21.7x10.8-12.4 μm.


Simonian reported the powdery mildew fungus infecting the members of Papaveraceae as *Sphaerotheca macularis f. papaveris* in the year 1962.
But later he elevated this to the level of species and erected *Sphaerotheca papaveris* Simonian in the year 1984.

So far there is no report of *S. papaveris* from India. Therefore this is being reported as a new fungus record to India. *Oidium schmiedeknechtii* U. Braun, Mycotaxon 25; 266. 1986. (Fig. 5)

Infection spots on leaves, epiphyllous, rarely hypophyllous, effused or in patches, mycelium hyaline, hyphae septate, branched, 4.5-6.2 μm wide, appressoria lobed; conidiophores erect, foot-cell cylindric 31.1-43.4x7.7-9.3μm, followed by 2-3 shorter cells, conidia single celled, cylindrical, ellipsoid-doliform, 34.1-46.5x12.4-21.7 μm, fibrosin bodies absent, germ tube with lobed appressorium at the tip.


*Oidium schmiedeknechtii* was first reported by Braun in the year 1986 from Taiwan. So far there is no report of this pathogen from India. Therefore this pathogen is being reported for the first time from India.

The authors express their grateful thanks to Dr. Uwe Braun, Martin Luther University, Germany and Prof. C. Manoharachary Co-ordinator U.G.C. SAP in Botany and Principal University College of Science, Osmania University for their kind help and encouragement.

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