



Article
Doi 10.5943/ppq/13/1/9

First report of *Podosphaera* sp. (*Fibroidium* sp.) causing powdery mildew on *Erigeron bonariensis* L. in India

Thite SV^{1*}, Shete RS², Wagh SH³, and Chavan CD⁴

¹Karmaveer Bhaurao Patil Mahavidyalaya, Pandharpur (Autonomous) Dist. – Solapur (M.S.) India Pin – 413304

²Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati (Autonomous) Dist. – Pune (M.S.) India Pin – 413102

³Shankarrao Mohite Mahavidyalaya, Akluj Tal.Malshiras Dist. – Solapur (M.S.) India Pin – 413101

⁴Department of Botany, Shivaji University, Kolhapur Maharashtra, India Pin – 416004

Thite SV, Shete RS, Wagh SH, Chavan CD 2023 – First report of *Podosphaera* sp. (*Fibroidium* sp.) causing powdery mildew on *Erigeron bonariensis* L. in India. Plant Pathology & Quarantine 13(1), 84–86, Doi 10.5943/ppq/13/1/9

Abstract

In January 2020, severe powdery mildew symptoms were observed on the leaves of *Erigeron bonariensis* L. (= *Conyza bonariensis*). Based on morphological characters the pathogen was identified as *Podosphaera* sp. (*Fibroidium* sp.). This is the first record of *Podosphaera* sp. (*Fibroidium* sp.) on *E. bonariensis* for India.

Keywords – *Erigeron bonariensis* – *Fibroidium* sp. – *Podosphaera* sp.

Introduction

Erigeron bonariensis (Asteraceae) is an annual plant. It is originated in North America, but has spread to inhabited areas of most of the temperate zone of Asia, Europe and Australia (Gaikwad & Garad 2015). It is commonly considered as weed. It can also be found in fields, meadows, and gardens.

During January 2020, the occurrence of powdery mildew in its anamorph stage was observed on *E. bonariensis* in the Botanical Garden of Yashvantrao Chavan Institute of Science Satara, M.S. India (17° 42.940'N, 73° 48.786'E,) altitude 733 m. Symptoms included greyish white powdery growth consisting of epiphytic mycelia and conidia mostly on adaxial surface of the leaves (Fig. 1a, c). Symptoms on the abaxial surface were less conspicuous and older leaves were more susceptible. Severely infected plants were defoliated. The pathogen was collected in its anamorph stage and readily identified as *Podosphaera* sp. (*Fibroidium* sp.).

According to (Braun 2012), the naming of powdery mildew pathogen was done. He explained clear connections between anamorph and teleomorph genera (e.g. *Blumeria* with *Oidium*, *Erysiphe* with *Pseudoidium*, *Golovinomyces* with *Euoidium*, and *Podosphaera* with *Fibroidium*) with the help of morphology and molecular sequence analyses data.

Materials & Methods

Infected leaves were collected and symptoms were examined by light microscopy. A reference specimen (HAL-2913 F) was deposited in the Geobotany Herbarium of Martin Luther University, Halle, Germany.

Results

Podosphaera sp. (*Fibroidium* sp.) on *E. bonariensis* is morphologically characterized as follows: Mycelium amphigenous, caulicolous, persistent; hyphae hyaline, thin walled, hyphal appressoria nipple shaped (Fig. 1g), conidiophores arising from the upper surface of superficial hyphae, straight, foot cell cylindrical, $39 \pm 8 \mu\text{m} \times 8 \pm 5 \mu\text{m}$ erect followed by 1-3 shorter cells forming catenulent conidia, mostly 3-5 conidia per chain (Fig. 1d); conidia ellipsoid-ovoid to doliiiform $52 \pm 5 \mu\text{m} \times 10 \pm 4 \mu\text{m}$ (Fig. 1e) with fibrosin bodies (Fig. 1h). Germ tubes simple to forked, short (Fig. 1f). Chasmothecia were not observed. According to the combination of these features, this pathogen was firmly identified as *Fibroidium* sp.

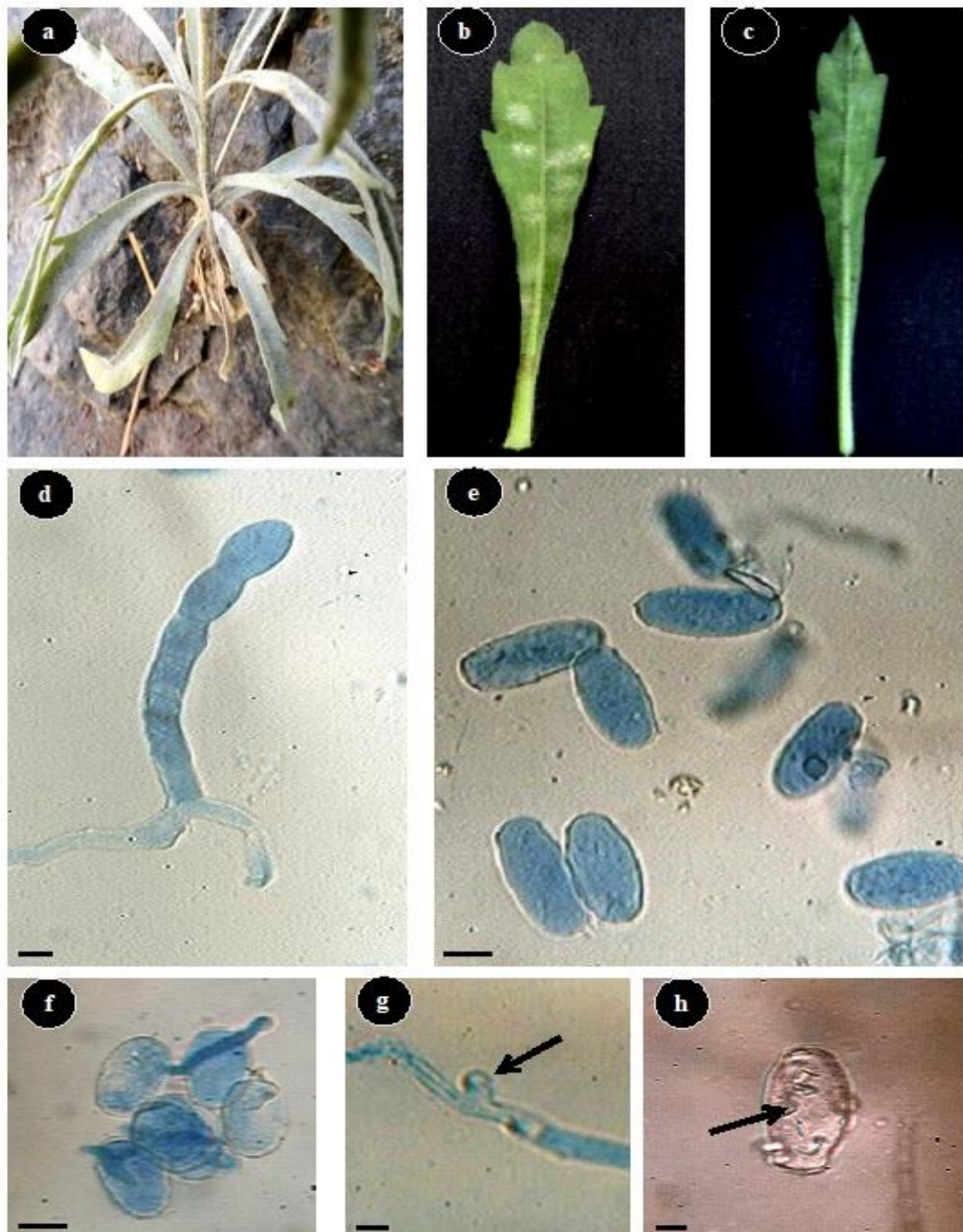


Fig. 1 – Powdery mildew on *Erigeron bonariensis*. a Infected host. b, c Symptoms on adaxial and abaxial surface of leaf. d Conidiophore with chain of conidia 45 ×. e Conidia at 45 ×. f Germinated

conidium. g Arrow indicates nipple shaped hyphal appressoria. h Arrow indicates fibrosin bodies in conidium. Scale bars = 20 µm.

Discussion

According to Paul & Thakur (2006) the powdery mildew species reported on *Erigeron* sp. so far from India viz. *E. tribolus* (= *Conyza stricta*) by *Pyllactinia corylea*, *Sphaerotheca fuliginea* and *E. linifolius* by *S. macularis* var. *fuliginea*. However, Anwar et al. (2020) reported *Podosphaera erigerontis-canadensis* on *E. bonariensis* in Pakistan.

Literature survey showed that there is no record of *Podosphaera* sp. (*Fibroidium* sp.) on *E. bonariensis* from India (Bilgrami et al. 1991, Jamaluddin et al. 2004, Paul & Thakur 2006, Pande 2008, Hosagoudar & Agarwal 2009, Braun & Cook 2012). Therefore, this is the first report of *Podosphaera* sp. (*Fibroidium* sp.) on *E. bonariensis*.

Acknowledgements

The authors sincerely thank Prof. Uwe Braun for providing literature and valuable suggestions. Thanks, are also due to Head Department of Botany and Principal of Karmaveer Bhaurao Patil Mahavidyalaya, Pandharpur (Autonomous) Dist. Solapur, Maharashtra, India

References

- Anwar A, Afshan NS, Ishaq A, Liaqat N, Siraj Uddin 2020 – First Report of Powdery Mildew Caused by *Podosphaera erigerontis-canadensis* on *Erigeron bonariensis* in Pakistan. Plant disease 104 (9): 2521. Doi 10.1094/PDIS-08-19-1788-PDN
- Bilgrami KS, Jamaluddin MA, Rizwi MA. 1991 – The Fungi of India. Part III (List and References). Today and Tomorrow's Printer and Publishers, New Delhi. Botanical Survey of India, Calcutta. 2001; 437–489
- Braun U. 2012 – The impacts of the discontinuation of dual nomenclature of pleomorphic fungi: the trivial facts, problems, and strategies IMA Fungus 3 (1): 81–86
- Braun U, Cook RA. 2012 – Taxonomic Manual of the Erysiphales (Powdery Mildews). Fungal Biodiversity Centre (CBS Biodiversity Series No. 11), Utrecht.
- Gaikwad SP, Garad KU 2015 – Flora of Solapur District Laxmi publication Solapur (MS) India.
- Hosagoudar VB, Agarwal DK. 2009 – Powdery mildews of India: Check list. Associated Publishing Company, New Delhi.
- Jamaluddin, Goswami MG, Ojha BM. 2004 – Fungi of India (1989–2001), Scientific Publishers, Jodhpur.
- Pande A. 2008 – Ascomycetes of Peninsular India. Scientific Publisher, Jodhpur.
- Paul YS, Thakur VK. 2006 – Indian Erysiphaceae. Scientific Publishers: Jodhpur, India.