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## NOTE

### FIRST REPORT OF RUST FUNGI *Puccinia duthiae* ON *Dichanthium foveolatum* FROM INDIA

S.D. Pawar, S.V. Thite, A.S. Kadam & B.A. Kore

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Among plant pathogens, fungi are most important natural pathogens. The Uredinales, commonly known as rusts occur on cultivated and wild plants throughout the world. The rust fungi (Basidiomycetes, Uredinales) are biotrophs with complex life cycles producing pleomorphic spores showing autocious or

heterocious nature displaying evolution of heteroecism. Because of this nature they spread wide and adapt to varied habitats. For their geographical distribution primarily they depend on their hosts. Rusts are used as bio-control agents in the management of some weeds.

**Material and Methods:** In a continued exploration of rusts on various hosts, specimens of grass were collected from various localities in Satara District (17.691401°N & 74.000938°E), from November 2015 to February 2016. During the study period (winter) many localities were regularly visited (at 15 days interval) to inspect progress in disease development and other life cycle stages of rust. Almost every specimen of host in the population at different localities was rusted. The symptoms were observed on leaves only and not on any other aerial plant parts. The specimens were examined microscopically and digital images were captured with a camera in the field and laboratory. The reference specimen was deposited at the Natural History Museum, Karlsruhe, Germany (KR-M-0048297).

**Result and Discussion:** The pathogen caused typical rust symptoms with orange and dark brown pustules on leaves of grass (Image 1b). The host grass was

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identified as *Dichanthium foveolatum* (Del.) Roberty. (=earlier names *Andropogon foveolatus*, *Eremopogon foveolatus*) (Yadav & Sardesai 2002) (Image 1a). It is one of the fodder grasses naturally growing on hill slopes. Microscopic examination revealed that the pathogen is *Puccinia duthiae* Ell. & Tracy and it is a new pathogen for host *D. foveolatum* causing rust. The rust taxon *P. duthiae* (*Puccinia amphiphididis* Doidge) was established by Ellis & Tracy (1897). *P. duthiae* also infects species of *Andropogon*, *Bothriochola* from Australia, China, Tanzania and South Africa (Cummins 1971).

This pathogen had caused rust on the grass *Andropogon pertusus* (= *Bothriochola pertusus*) in Saharanpur (Cummin 1971), Kasauli (Himachal Pradesh), Dehradun (Uttarakhand), Pune (Maharashtra), Phulguru, Jabalpur (Madhya Pradesh), Dharwar (Karnataka) and Rajgir (Bihar) (Gautam & Avasthi 2016). A literature survey states that uredinial and telial stages of *P. duthiae* on the new host *D. foveolatum* has been described for the first time from Satara (Maharashtra) (Bilgrami et al. 1991; Jamaluddin et al. 2004). Air born Urediniospores disperse in grasslands and cause 90% infections in the field.

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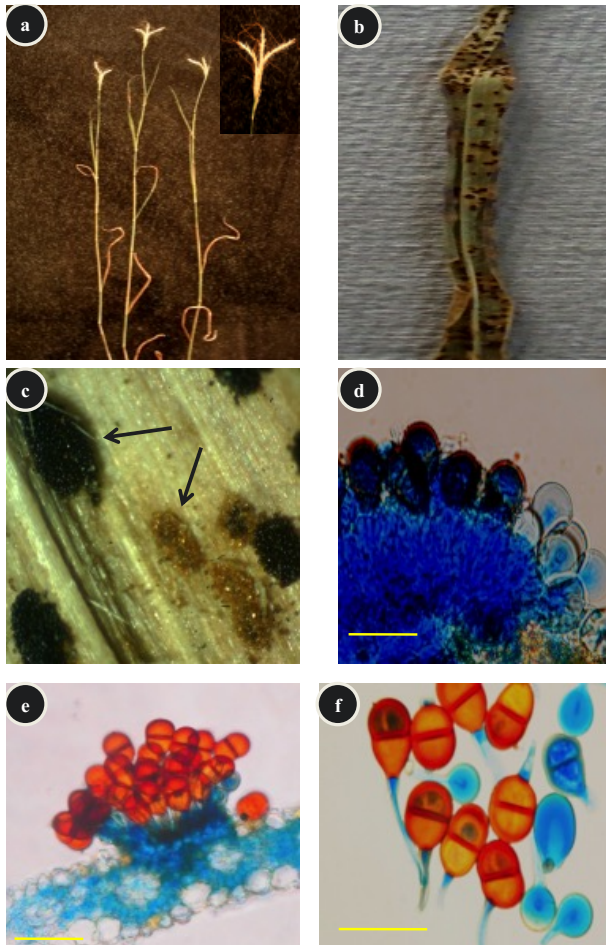
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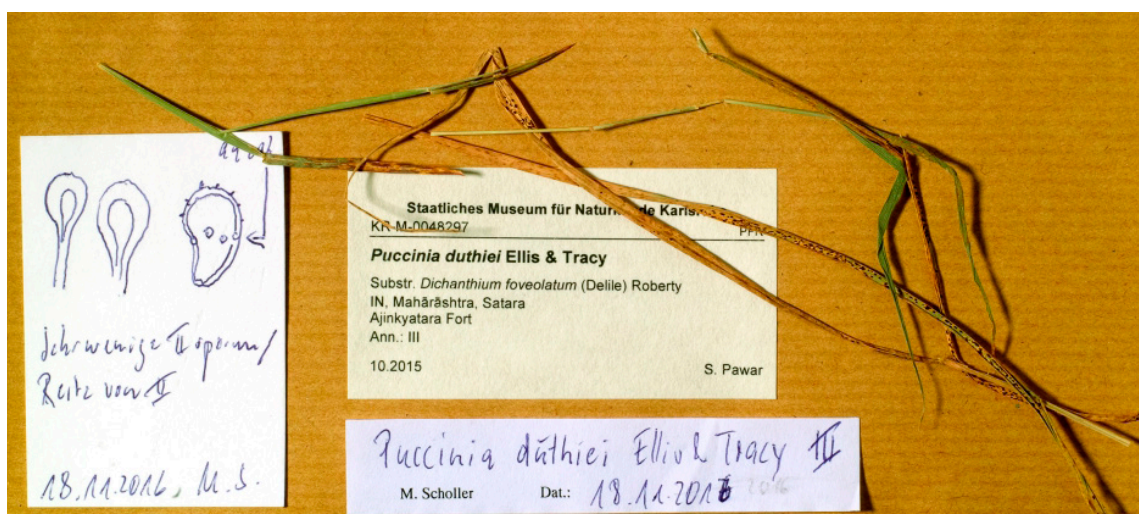
**Image 1. *Puccinia duthiae*: a - habitat of host; b - symptom; c - arrow shows enlarged uredenia and telia; d - transverse section of leaf showing urediniospore and paraphyses (bar = 50µm); e - transverse section of leaf showing teliospores (bar = 50µm); f - teliospore and paraphyses (bar = 40µm)**

***Puccinia duthiae* Ell. & Tracy  
= *Puccinia amphiphididis* Doidge**

Aecia and spermogonia unknown. Uredinia and telia intermixed, uredinia more than telia. Uredinia mostly on abaxial leaf surface, hypophyllous, scattered between veins, erumpent, cinnamon brown, up to 1mm wide, paraphysate (Image 1c). Urediniospores oval, echinulate, stalked, apex usually darker, 19.3–28.4 µm, cinnamon brown, germ pores 4–5, equatorial, paraphyses capitate, mostly lemon yellow, the wall usually thick in the stipe 96.5µm (Image 1d). Telia mostly on abaxial leaf surface, hypophyllous, scattered between veins, erumpent, blackish brown colour, up to 1mm wide (Image 1c). Teliospores two-celled, broadly ellipsoid, broad at apex narrowing at base, 33.9–41.5 µm x 27.5–30.5 µm, wall thick, smooth, chestnut brown, broader at apex than at sides, pedicel 45.0–68.8µm, yellowish to brown (Image 1e).

#### References

- Bilgrami, K.S. Jamaluddin & M.A. Rizwi (1991).** *The Fungi of India. Part III (List and References).* Today and Tomorrow's Printer and Publishers, New Delhi, 798pp.
- Cummins, G.B. (1971).** *The Rust Fungi of Cereals, Grasses, Bamboos.* Springer-Verlag, New York, 570pp.
- Ellis, J.B. & S.M. Tracy (1897).** New species of North American fungi from various localities. *Bulletin of the Torrey Botanical Club* 24: 283.
- Gautam, A.K. & S. Avasthi (2016).** First check list of rust fungi in the genus *Puccinia* from Himachal Pradesh, India. *Plant Pathology and Quarantine* 6(2): 106–120.
- Jamaluddin, M.G. Goswami & B.M. Ojha (2004).** *Fungi of India.* Scientific Publishers, Jodhpur, 324pp.
- Yadav, S.R. & M.M. Sardesai (2002).** *Flora of Kolhapur District.* Shivaji University, Kolhapur (M.S.) India, 680pp.



**Image 2. Herbarium image of *Puccinia duthiae* (KR-M-0048297).**



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