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Three new rust species (*Uredinales*) from Turkey

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Abstract—This paper describes and illustrates three new rust species, *Phragmidium hendersonii* on *Potentilla*, *Puccinia gjaerumii* on *Bellardiochloa polychroa* and *Puccinia asyneumatis* on *Asyneuma amplexicaule*.

Keywords—microfungi, new taxa, parasite

Introduction

Approximately three hundred and twenty rust fungi are known in Turkey (Bahcecioglu 1998, 2001; Bahcecioglu & Isiloglu 1995; Bahcecioglu & Gjaerum 2003, 2004; Kabaktepe & Bahcecioglu 2005; Bahcecioglu & Yildiz 1996, 2005; Henderson 1959, 1961, 1964; Tamer et al. 1998). With this new study, three new rusts have been added to the Turkish rust flora.

Materials and methods

Specimens cited here were collected in the years 2002–2004 in Kahramanmaras and Ordu provinces. Spores were mounted in lactophenol. Host names follow the “Flora of Turkey and Aegean Islands” by Davis (1968–1985) and Davis et al. (1988). The specimens are preserved in the herbarium of İnönü University.

Phragmidium hendersonii* Bahç. & Kabaktepe, sp. nov.*Fig. 1**

Etymology: in honour of Prof. Dr. D.M. Henderson.

Pycnia et aecia ignota. Uredinia hypophylla, dispersa, brunnea. Uredinosporae 18-30 x 16-20 µm, globoideae, ellipsoideae, vel ovoideae, pariete 1-2 µm crasso, luteolo, verruculoso, cum 3 poris germinationis dispersis. Telia urediniis similia, sed atra, cum paraphysibus clavatis, pariete 1-1.5 µm crasso, hyalino. Teliosporae 44-110 x 20-26 µm, 3-7 cellulares (raro 1-2), cylindratae, ad septum leviter constrictae, basim versus rotundatae, quoque cellula aequalis, ad apicem dilatatae, generaliter praecipue apice

obtusae papillatae, pariete laevi, 2-3 µm crasso, castaneo-brunneo, quoque cellula poro 1 (raro 2), pedicello persistenti, usque ad 220 µm longo, deorsum incrassato vel non, hyalino vel dimidius colorato.

Pycnia and aecia not seen. Uredinia hypophyllous, scattered, brown. Urediniospores 18-30 x 16-20 µm, globose, ellipsoid, ovoid, wall 1-2 µm thick, yellow, verruculose with 3 scattered pores. Telia similar to uredinia, but black, with clavate paraphyses, walls 1 µm thick, hyaline. Teliospores 44-110 x 20-26 µm, 3-7 (rarely 1-2) celled, cylindrical, slightly constricted at the septa, rounded at base, cells almost equal in size except for the larger uppermost one, generally bluntly papillate at apex, rarely absent, wall smooth, 2-3 µm thick, chestnut brown, with 1 (rarely 2) pore upper part of each cell. Pedicel up to 220 µm long, of equal thickness or swelling at base, upper part pigmented, at base hyaline or slightly pigmented.

Holotype here designated: Z. Bahcecioglu 3830 (Inönü), Turkey, Kahramanmaras, 2-3 km from Adıran to Cıgır, 1300 m, 20. Aug. 2004, on *Potentilla* sp. (*Rosaceae*). Isotype in NCRI.

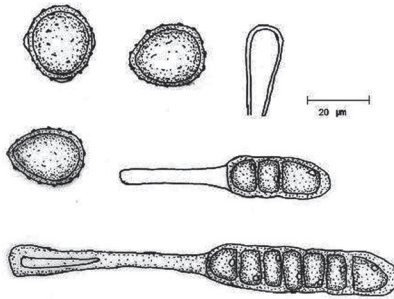


Fig. 1. *Phragmidium hendersonii*. Telio-, urediniospores and paraphysis from type.

The teliospores in the present specimen differ from those in *Phr. potentillae* (Pers.) P. Karst. by having 7 cells, each with 1 pore (rarely 2), by being slightly constricted at septum and the bigger size.

Phr. potentillae has been reported on the present host from America, Finland, Germany, Great Britain, Italy and Turkey.

***Puccinia asyneumatis* Bahç. & Kabaktepe, sp. nov.**

Fig. 2

Etymology: from *Asyneuma*, a genus in Campanulaceae.

Pycnia et aecia ignota. Uredinia hypophylla, rariter epiphylla, dispersa, pulverulenta, brunnea. Urediniosporae 20-28 x 18-22 µm, globoideae, ellipsoideae, pariete 1.5-2.5 µm crasso, cinnamomeo-brunneo echinulato, cum 2-4 poris germinationis dispersis. Telia urediniis similia. Teliosporae 26-34 x 16-20 µm, ellipsoideae, oblongus, rariter basim versus attenuatae, ad septum leviter constrictae, pariete 1-2 µm crasso, brunneo, leviter verruculoso, poro superiore apicali, poro inferiore prope septum, poris hyalinis papillis tectis, pedicello hyalino, fragili.

Pycnia, aecia not seen. Uredinia hypophyllous, rarely epiphyllous scattered, pulverulent, brown. Urediniospores 20-28 x 18-22 μm , globoid, ellipsoid, wall 1.5-2.5 μm thick, cinnamon brown, echinulate with 2-4 scattered pores. Telia similar to uredinia. Teliospores 26-34 x 16-20 μm , ellipsoid, oblong, rounded at both ends or rarely attenuate at base, slightly constricted at septa, wall 1-2 μm thick, brown, slightly verruculose, upper pore apical, lower pore at septa, with a minute hyaline papilla at apex, pedicel hyaline, fragile.

Holotype here designated: Sanli Kabaktepe 2441 (Inönü), Turkey, Ordu, 10 km. from Mesudiye to Golkoy, 1150 m, 05. Jul. 2003, on *Asyneuma amplexicaule* (Willd.) Hand.-Mazz. (*Campanulaceae*). Isotype in NCRI.

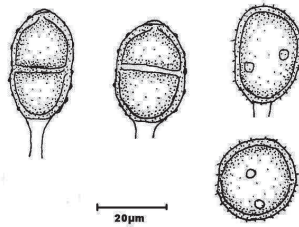


Fig. 2. *Puccinia asyneumatis*. Telio- and urediniospores from type.

To our knowledge no *Puccinia* has previously been described on this host genus. The teliospores of the present species are similar to those in *P. campanulae* Carmich. but have a dark coloured teliospore wall and urediniospores.

***Puccinia gjaerumii* Bahç. & Kabaktepe, sp. nov.**

Fig. 3

Etymology: in honour of Dr. Halvor B. Gjaerum.

Pycnia et aecia ignota. Uredinia hypophylla, rariter epiphylla dispersa, pulverulenta, apapaphysata, brunnea. Urediniosporae 22-26 x 18-22 μm , globoideae vel subgloboideae, pariete 2-4 μm crasso, luteolo, verruculoso, cum 2-3 poris germinationis aequatorialibus vel subaequatorialibus. Telia urediniis similia sed atrobrunnea. Teliosporae 28-40 x 18-24 μm , ellipsoideae, basim versus rariter attenuatae, ad septum leniter vel non constrictae, pariete 1.5-3 μm crasso, apice usque ad 6 μm , luteolobrunneo, laevi, poro superiore apicali, poro inferiore prope septum, apicaliter inconspicue papillato pedicello hyalino vel luteolo, persistenti, usque ad 90 μm longo, spora unicellulares 20-24 x 16-20 μm , subgloboideae, pedicello usque ad 34 μm longo, hyalino.

Pycnia, aecia not seen. Uredinia hypophyllous, rarely epiphyllous, scattered, pulverulent, lacking paraphyses, brown. Urediniospores 22-26 x 18-22 μm , globoid or subgloboid, wall 2-4 μm thick, yellowish, verruculose, with 2-3 equatorial or subequatorial pores. Telia similar to uredinia but dark brown, teliospores 28-40 x 18-24 μm , ellipsoid, oblongrounded at both ends or rarely attenuate at base, slightly constricted at septa or not wall 1.5-3 μm thick, at apex up to 6 μm , yellowish brown, smooth, upper pore apical, lower pore at septa, slightly papillate. Pedicel hyaline or yellowish, persistent, up to 90 μm . One-celled spores 20-24 x 16-20 μm , subgloboid, pedicel up to 34 μm , hyaline.

Holotype here designated: S. Kabaktepe 2028 (Inönü), Turkey, Ordu, 8 km. from Kabatas to Catalpinar, 550 m, 18. Sep. 2002, on *Bellardiachloa polychroa* (Trautv.) Roshev. (*Poaceae*). Isotype in NCRI.

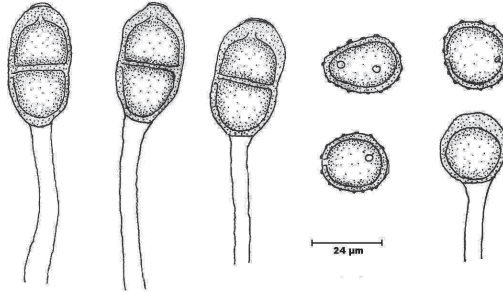


Fig. 3. *Puccinia gjaerumii*. Telio- urediniospores and mesospore from type.

To our knowledge, no rust has previously been described on this genus. The teliospores differ from those of *Puccinia molinae* Tul. by teliospores slightly constricted and with hyaline apical papillae.

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