

Note

Rust fungi (Uredinales) found in Marshall Islands and Pohnpei

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Accepted for publication 21 March 1998

***Uromyces wedeliae*, *Coleosporium plumeriae*, and *Uredo guettardae* are reported for the first time from Kwajalein Atoll, Republic of Marshall Islands, and Pohnpei, Federal States of Micronesia.**

Key Words—*Coleosporium*; Uredinales; *Uredo*; *Uromyces*.

The islands of Micronesia are virtually unsurveyed mycologically and still await a systematic inventory study of the fungi like those conducted elsewhere by Dingley et al. (1981) and Shaw (1984).

The Republic of Marshall Islands consists of 32 atolls in two parallel chains stretching some 1,320 km in the northwest-southeast direction at 5°–15° N and 162°–173° E (Myers, 1991; Carter, 1995). The Kwajalein Atoll, the largest atoll in the world, is the center of the Ralik Chain in the Marshalls. It consists of more than 90 islets that encircle a large lagoon with a total surface area of 2,335 km². The atoll is 120 km long and 24 km wide on average and some 90 islets are scattered on both sides (Gressitt, 1954). None of these islands are more than a few meters above sea level. The climate of the Marshalls is tropical, the mean annual temperature being 27°C with a maximum of 34°C and a minimum of 22°C. The mean annual precipitation is 2,593 mm, with a dry season in December through March, when the trade winds prevail (Gressitt, 1954).

Pohnpei (formerly Ponape), part of the Federated States of Micronesia, is located at 6°54' N and 158° 14' E in the Western Pacific Ocean (Ashby, 1983). In contrast to the Marshalls, Pohnpei is a mountainous terrain of volcanic origin with the territory of 334 km²; its topography is diverse, consisting of steep mountains with some limited coastal plains or gentle lower slopes. Mt. Nahnal, the highest peak in the mountain range exceeds 790 m above sea level. Pohnpei has the most extensive natural forests remaining in Micronesia, with more than 600 species of vascular plants (Gressitt, 1954; Ashby, 1983). The climate of Pohnpei is classified as tropical maritime.

A mycological survey of these Islands was initiated by the senior author in 1996. Here we report three rust species that were collected on the Islands of Roi-Namur and Kwajalein in the Kwajalein Atoll and Pohnpei. These

fungi are newly recorded in these Pacific areas. All the specimens cited in this paper were collected by Roxana González-Ball (R.G.) unless otherwise specifically noted and are deposited in the Herbarium of Systematic Mycology, Ibaraki University (IBA).

Uromyces wedeliae Hennings, *Hedwigia* 43: 150. 1904.

Spermogonial-aeical stage on *Wedelia biflora* L., Kwajalein Island, March 1997, R.G. No. 4-1997, IBA-7826.

Spermogonial-aeical clusters occur on the leaves, forming slightly raised, circular spots of 5–10 mm diam. The spermogonia are formed on the adaxial surface of the leaves, subepidermal in origin, globose or subglobose, and ca. 150 µm in diam. The aecia are subepidermal in origin and become ruptured by a central aperture, but are not peridiate as in a typical *Aecidium*. The aeciospores are pedicellate, subglobose or broadly ellipsoid, and 25–37 × 20–35 µm in size. The spore wall is brown, evenly ca. 2–2.5 µm thick, and sparsely echinulate. One (occasionally two) germ pore is located on the equatorial zone.

Another collection on *W. biflora* from the northeastern part of Roi-Namur Island (R.G. No. 3-1997, IBA-7827) bears scattered sori that are reminiscent of collapsed telia. However, no teliospores are observed on the specimen.

The fungus has been reported from Fiji, Tonga (Dingley et al., 1981), Papua New Guinea (Cummins, 1940), the Philippines (Sydow and Sydow, 1913), Taiwan, and Japan (Hennings, 1904; Hiratsuka et al., 1992) in the Pacific region. In addition to *W. biflora*, *W. chinensis* (Osbeck) Merr. and *W. prostrata* Hemsl. have been listed as hosts of this fungus (Hiratsuka et al., 1992; Ono et al., 1992).

Coleosporium plumeirae Patouillard, Bull. Soc. Myc. Fr. **18**: 178. 1902.

Uredinial stage on *Plumeria* spp., Kwajalein Island, June 1997, R.G. No. 8-1997, IBA-7829; R.G. No. 9-1997, IBA-7830; R.G. No. 10-1997, IBA-7831; Roi-Namur Island, June 1997, R.G. No. 12-1997, IBA-7832; June 1997, R.G. No. 13-1997, IBA-7833; Pohnpei, 5 July 1997, Vicky Santucci, IBA-7853.

This is the first record of this species in the Republic of the Marshall Islands and Pohnpei. This fungus is native to tropical America but its established distribution has been confirmed on cultivated *Plumeria* varieties in Oceania, Polynesia, and Indonesia in 1989–1995 (Ogata and Gardner, 1992; Kobayashi et al., 1994; Kakishima et al., 1995).

Plumeria acutifolia Poir., *P. alba* L., *P. emarginata* Griseb., *P. krugii* Urban, *P. lutea* Ruiz. & Pav., *P. obtusa* Bert. & A. DC., *P. rosea*, and *P. rubra* L. are listed as hosts of this fungus (Kakishima et al., 1995). The unidentified hosts of the rust collections herein reported are different in gross morphology and color of flowers and may represent different species of *Plumeria*.

Uredo guettardae Hiratsuka, f. & Hashioka, Bot. Mag. Tokyo **49**: 523. 1935.

Uredinial stage on *Guettarda speciosa* L., Roi-Namur Island, 30 June 1997, R.G. No. 14-1997, IBA-7834.

The uredinia are minute and scattered on abaxial surfaces of the leaves, some of which are covered entirely and densely by yellowish orange, powdery uredinia. The uredinia are surrounded by clavate, often incurved, paraphyses of 27–45 μm long and 12–18 μm wide. The urediniospores are short pedicellate, globose, subglobose to obovoid, and 20–29 \times 13–22 μm in size. The wall is colorless and uniformly ca. 2.5 μm thick. No germ pore is observed.

This fungus was previously known to be distributed only in Taiwan (Hiratsuka and Hashioka, 1935) and in the Ryukyu Islands, Japan (Hiratsuka et al., 1992; Ono et al., 1992).

Acknowledgements—We are grateful to Frederick Ball for his field assistance and review of this report. We also extend our thanks to Vicky Santucci for providing us with the rust specimen from Pohnpei.

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