



First report of *Puccinia crepidis-japonicae* in Puerto Rico, causing rust disease in oriental false hawksbeard

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Youngia japonica (Asteraceae) is an annual, cosmopolitan herb, commonly known as oriental false hawksbeard, that inhabits disturbed areas. It is native to eastern Asia (China and Japan), and is considered invasive in Africa, the Americas, and Australia-Oceania. Leaves are used as a remedy of cold, sore throat, and diarrhea in China. *Puccinia crepidis-japonicae* was reported on this host from Asia, the Americas, and Oceania (Farr and Rossman 2021). In May 2022, rust disease caused by a *Puccinia* species was observed on leaves of *Y. japonica* near the summit of Cerro de Punta, Puerto Rico. Roughly 60% of observed plants were infected. The specimens were examined microscopically and compared with type specimen descriptions in published literature. The uredinia were amphigenous, rounded, naked, scattered, less than 0.5 mm in diameter, brownish. Urediniospores were globose to ellipsoid, yellow-brown, $19.9\text{--}21.9 \times 22\text{--}25\text{ }\mu\text{m}$ ($n=20$), echinulate, cell walls around $2\text{ }\mu\text{m}$, dark yellow brown, with two to three germ pores. No telia were seen. DNA was extracted from a single rust sorus using EZNA Plant DNA kit by Omega. The internal transcribed spacer (ITS), and large subunit (LSU) regions were amplified following the protocols of Demers et al. (2017) and Aime et al. (2018), respectively. Sequences were deposited in GenBank (accession Nos. ON938164, ON921007). A BLASTn search revealed that the sequences share 100% nucleotide similarities with the ITS (KY798395) and LSU (KY798360) sequences of *P. crepidis-japonicae* on *Y. japonica*. Phylogenetic analysis of the concatenated dataset using the Bayesian method performed on the Geneious Prime platform, further confirmed the species as *P. crepidis-japonicae*. To

our knowledge, this is the first report of *P. crepidis-japonicae* in Puerto Rico. Being a pathogen of weedy hosts, *P. crepidis-japonicae* may play a significant role as a biocontrol agent against *Youngia japonica*.

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Statements and declarations

Conflict of interest The authors have no conflict of interest to declare.

Informed consent The manuscript is new and not being considered elsewhere. All authors have approved the submission of this manuscript.

Research involving human participants and/or animals The authors declare that no human participants and animals were involved in this study.

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