Sugarcane Rust and Other New Rust Diseases from El Salvador

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ABSTRACT

Sugarcane rust, caused by Puccinia melanocephala, was seen for the first time in El Salvador in 1979. Eight other rust fungus diseases are reported for El Salvador for the first time.

Sugarcane rust, caused by Puccinia melanocephala H. & P. Sydow in Sydow and Butler (synonym P. erianthi Padw. and Khan), has been reported recently in Jamaica, Puerto Rico, the Dominican Republic, Florida, and Louisiana (4). Rust on sugarcane has been reported in other countries in the Western Hemisphere, but the causal species has not been positively identified (3,4).

We now confirm that P. melanocephala is present in El Salvador. Rust was collected at Aguilares, E.S., 4 July 1979, on leaves of sugarcane cultivar B 4362. Uredinia and telia were present on the abaxial surfaces of the leaves. Sorus were examined in free-hand sections mounted in lactophenol.

The urediniospores are echinulate, 28–37 × 20–27 μm, have four or five equatorial germination pores, and are cinnamon brown. No urediniospores with spore walls thickened apically were seen. The uredinial paraphyses are colorless, capitate or clavate-capitate, with walls 1–3 μm thick in the stipe and 3–8 μm thick at the apex. Teliospores are chestnut brown, smooth, 33–42 × 17–23 μm, with walls 1–2 μm thick (2–6 μm at the spore apex). The teliospore pedicel are 10–15 μm long.

A specimen was deposited in the Arthur Herbarium, Purdue University (accession number PUR 65789). The specimen was collected by George Clayton Wall, Parasitologia Vegetal, Centro Experimental Nacional de Tecnologia y Agropecuaria, Ministerio de Agricultura y Ganaderia, San Salvador, El Salvador, C.A.

Another rust fungus, Puccinia kuehnii Butler, was reported on sugarcane in Africa and Asia (2) and recently in Latin America (5). The latter report did not describe the rust fungus or report that voucher specimens had been kept. Without such evidence, we cannot verify the report. P. kuehnii has paraphyses and teliospores without apically thickened cell walls, but its urediniospore walls are 5 μm thick at the apex. Only uredinia and telia are known for either species of rust (2).

During a visit to El Salvador in May 1977, we found several other rust fungus diseases for the first time, based on the only published lists of Salvadorean diseases (1,6). Our findings include:

1) Turnera rust (Aecidium turnerae P. Henn.) on Turnera ulmifolia L. (Turneraceae), Ruinas de Sihuatan, north of Aguilares, 18 May 1977, PUR 65822.

2) Pine cone rust (Cronartium conigenum Hedg. & Hunt) on Pinus pseudoabrotus Lindl. (Pinaceae), PUR 65627, and uredinia on Quercus sp. (Fagaceae), PUR 65823, Puerta el Gramal, 82.5 km north of San Salvador, Dept. de Chalatenango, 18 May 1977. The infected pine cones, which may be completely destroyed by the rust aecia, are bright orange and visible from hundreds of yards away.

3) Yellow fern rust (Desmella anemiae H. and P. Sydow, syn. D. superficialis Kern in Stevenson) uredinia on Tectaria melesia Car. (Polypodiaceae), Turicentro de Los Chorros, 10 km west of Santa Tecla, Dept. de La Libertad, 24 May 1977, PUR 65641.

4) Aliso rust (Melampsoridium hiratsukanum S. Ito) uredinia on Alnus arguta (Schlecht.) Spach. (Betulaceae), Volcan de Santa Ana, Dept. of Santa Ana, 25 May 1977, PUR 65825.

5) Oregano rust (Puccinia santanae Farl.) on Lippia berlandieri Schauer (Verbenaceae), San Andres Experiment Station, 25 km west of Santa Tecla, Dept. de La Libertad, 20 May 1977, PUR 65826.


7) Cuapinol rust (Uredo hymenaeae Mayor) on Hymenaea coubaril L. (Leguminosae), near Cojutepeque, Dept. de Cuscatlan, 19 May 1977, PUR 65830.

8) Mud-plantain rust (Uromyces heterantherae P. and H. Sydow) uredinia on Heteranthera reniformis Ruiz and Pavyon (Pontederiaceae), Puerta La Palma, about 90 km north of San Salvador, Dept. de Chalatenango, 18 May 1977, PUR 65829.

LITERATURE CITED


