NOTAS CIENTÍFICAS

Powdery mildew of *Ruta graveolens* in Brazil caused by *Oidiopsis haplophylli*

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ABSTRACT

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Oidiopsis haplophylli is described causing powdery mildew on *Ruta graveolens* for the first time in Brazil (Viçosa, MG). The fungus causes yellowing of infected leaves accompanied by the presence of a whitish mycelial colony abaxially. The following combination of characters typical of this species was observed on the specimens collected in Viçosa: mycelium hypophyllous, hemiendophytic (partly external and partly internal), entering the leaves through the stomata; conidiophores hypophyllous, produced from the internal mycelium emerging through the stomata, cylindrical, hyaline, smooth; conidia, isolate, dimorphic - primary conidia lanceolate, 66.5-91.5 x 11.0-20.0 mm l/w ratio 3.5–6.2, secondary conidia cylindrical with rounded ends, 57.0-81.5 x 13.5-20.0 mm, l/w ratio 3.1 – 5.3, aseptate, hyaline, smooth.

Additional keywords: *Erysiphaceae, Phyllactinioideae*, rue, *Leveillula taurica.*

RESUMO

Liberato, J.R., Barreto, R.W. Oídio de *Ruta graveolens* no Brasil causado por *Oidiopsis haplophylli*. ***Summa Phytopathologica***, v. 32, n. 1, p. 80-81, 2006.

Oidiopsis haplophylli é relatado causando oídio em arruda (*Ruta graveolens*) pela primeira vez no Brasil (Viçosa, MG). O fungo causa um amarelecimento de folhas de arruda sem bordos definidos acompanhado de cobertura fúngica branca na superfície abaxial. O seguinte conjunto de características, típico desta espécie foi observado nos espécimes coletados em Viçosa: presença de micélio hemiendofítico (parcialmente interno e parcialmente externo), tênue a denso com penetração das folhas através dos estômatos; conidióforos originando do micélio interno, emergindo através dos estômatos, cilíndricos, hialinos, lisos; conídios unicelulares, hialinos, produzidos isoladamente, dimórficos - conídios primários lanceolados, 66,5-91,5 x 11,0-20,0 mm, razão c/l 3,5–6,2, conídios secundários cilíndricos com extremidades arredondadas, 57,0-81,5 x 13,5-20,0 mm, razão c/l 3,1–5,3.

Palavras-chave adicionais: *Erysiphaceae, Phyllactinioideae*, arruda, *Leveillula taurica.*

Rue (*Ruta graveolens* L), local name - arruda, is a European species that is cultivated in many countries as a medicinal plant, used against ear infections, skin and liver ailments among others. Besides, since antiquity it has been used in Europe and Africa as a protection against "evil eye". This popular tradition is also very common in Brazil (3).

A group of diseased rue plants was found in a medicinal herb garden in the campus of the Universidade Federal de Viçosa; MG, Brazil. The diseased plants had yellowed leaves with a grayish-white somewhat powdery cover abaxially (Figure 1). Leaf-blight and defoliation resulted from the fungus attack. The disease was repeatedly observed at this site from 2001 to 2003.

Specimens were collected and brought to the lab. Part of the material was dried in a plant press whereas selected leaves were

used for observations under a light microscope. In order to elucidate the origin of conidiophores of the fungus (whether produced from the external mycelium or arising through the stomata) a whole-leaf clearing and staining technique developed by Bruzzese & Hasan (2) was utilized. It allows the observation of conidiophores arising through the stomata and superficial hyphae entering the leaves through stomata. This feature is particularly useful for recognition of the anamorphic powdery mildew (Ascomycota: Erysiphales) belonging to *Oidiopsis*. The species involved was determined by the use of the keys for the group (1). The fungus identity and its description are provided below:

Oidiopsis haplophylli (Magnus) Rulamort, Bulletin de la Société Botanique du Centre-Ouest, nouvelle série,.17, p. 1-10 (1986) anamorph of ***Leveillula taurica*** (Lév.) G. Arnaud, Ann. Epiphyt. 7, p. 94 (1921) (Figure 2).

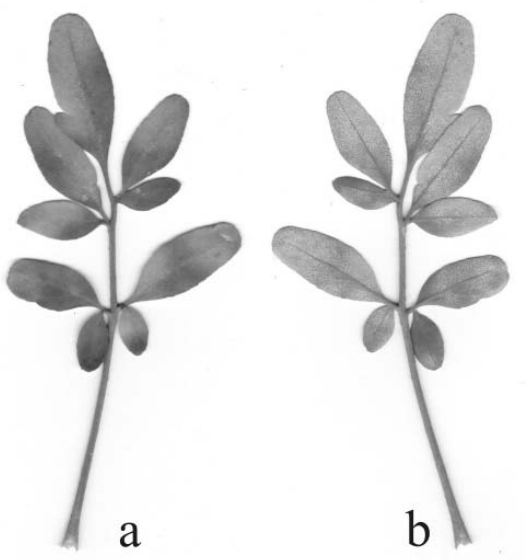

Figure 1. Powdery mildew symptoms on *Ruta graveolens*: a) adaxial view of infected leaf showing large areas that turned yellow due to infection; b) abaxial view of same leaf with powdery colonies of *Oidiopsis haplophylli.*

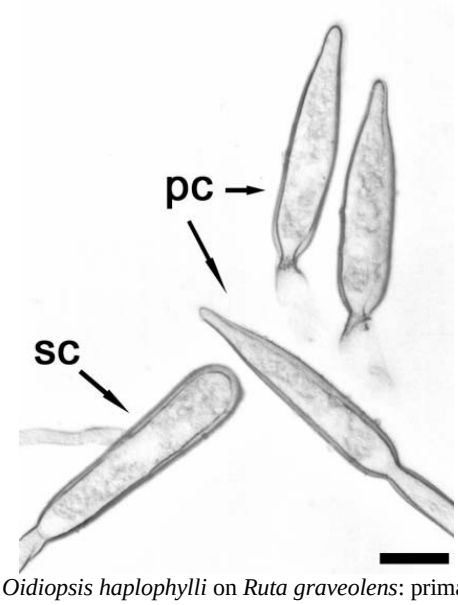

Figure 2. *Oidiopsis haplophylli* on *Ruta graveolens*: primary (pc) and secondary (sc) conidia (Bar = 20 mm).

Mycelium hypophyllous, hemiendophytic (partly external and partly internal), *Superficial hyphae* entering the leaves through stomata, branched, septate, hyaline, smooth. *Conidiophores* hypophyllous, produced from the internal mycelium, arising through the stomata, unbranched, cylindrical, hyaline, smooth. *Conidia* single, dimorphic: primary conidia lanceolate, apically pointed, base rounded, 66.5-91.5 x 11.0-20.0 mm, l/w ratio 3.5 – 6.2; secondary conidia clavate to cylindrical with rounded ends, 57.0-81.5 x 13.5-20.0 mm, l/w ratio 3.1 – 5.3, aseptate, hyaline, smooth. *Teleomorph*: not found.

Material examined: VIC 26484, Viçosa, MG, Brazil, 15th June 2001; VIC 26492. Viçosa, MG, Brazil, 20th Jul 2001.

Although the world monograph of Erysiphales (1) indicates the correct name to be applied to the anamorph of *L. taurica* to be *Oidiopsis sicula* Scalia, some authors have continued using *Oidiopsis taurica* (Lév.) E.S. Salmon for this stage of the fungus. However, according to the authority in this group (U. Braun, pers. comm.) the rules in ICBN (Art. 59.6) determine that Salmon's combination has to be considered a formal error, and *O. taurica* must be attributed to Salmon alone as new name for the anamorphic state, i.e., *O. taurica* E.S. Salmon, introduced in 1906. *Oidium haplophylli* Magnus (1900) is the oldest name for the anamorph, with *Oidiopsis haplophylli* (Magnus) Rulamort (1986) as correct combination in *Oidiopsis* (6). The latter name should be used for the anamorph of *L. taurica*.

There is little information available in the Brazilian literature about plant diseases attacking medicinal plants. The main reference on fungal pathogens on plants in Brazil (4) does not contain any reference on fungi attacking rue. This, therefore, appears to be the first record of a fungal disease of this host in Brazil. The only other report of this fungus-host association was in a review (5) where the author mentioned *R. graveolens* as a host for *L. taurica* but without providing any additional information such as details about the location for this record or a reference from which this information was obtained. *L. taurica* and its anamorph are known from hundreds of different hosts including plants belonging to unrelated families (1).

REFERENCES

1. Braun, U. A monograph of the *Erysiphales* (powdery mildews). **Nova Hedwidgia**, Beihefte Zur, v.89, p.1-700, 1987.
2. Bruzzesse, E.; Hasan, S. A whole leaf clearing and staining technique for host specificity studies of rust fungi. **Plant Pathology**, Oxford, v.32, p.335-338, 1983.
3. Lorenzi, H.; Matos, F.J.A. **Plantas medicinais no Brasil**: nativas e exóticas. Nova Odessa, Instituto Plantarum de Estudos da Flora, 2002. 512p.
4. Mendes M.A.S; Silva, V.L.; Dianese, J.C.; Ferreira, M.A.S.V.; Santos, C.E.N.; Gomes Neto, E.; Urben, A.F.; Castro, C. **Fungos em plantas no Brasil**. Brasília: Embrapa, 1998. p. 1-555.
5. Palti, J. The *Leveillula* mildews. **The Botanical Review**, Bronx, v.54, p.423-535, 1988.
6. de Rulamort, M. Remarques taxinomiques et nomenclaturales sur quelques micromycètes. **Bulletin de la Société Botanique du Centre-Ouest, nouvelle série**, Saint-Sulpice de Royan, v.17, p. 1-10, 1986.