# Grape Rust caused by *Phakopsora euvitis*, a New Disease for Brazil

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**RESUMO**

**Ferrugem da videira caused by *Phakopsora euvitis*, uma nova doença para o4 Brasil**

A ferrugem da videira foi constatada pela primeira vez no Brasil, ocorrendo em parreirais (*Vitis* spp.)comerciais no estado do Paraná tendo recentemente atingido também o Estado de São Paulo. O fungo *Phakopsora euvitis* foi identificado como o agente causal da doença. Esta ferrugem ocorre preferencialmente em folhas maduras causando a desfolha precoce das plantas infetadas.

Recently a bacterial disease of grapes (*Vitis* spp.) new to the American Tropics was recorded in Brasil (Lima *et al*., Fitopatol. Bras. 24:440-443. 1999; Malavolta *et al*., Summa Phytopathol. 25:262-264. 1999), and now a grape rust not known in Brazil was found in Paraná State. In South America, Viégas (Índice de Fungos da América do Sul, IAC, Campinas, 1961) listed on Vitaceae only *Phakopsora vitis* (Thuem.) Syd. [syn = *Angiopsora ampelopsidis* (Diet. & Syd.) Thirum. & Kern] with incidence on *Vitis vinifera* L. and *V. caribaea* DC in Colombia and Venezuela as mentioned by Pearson & Goheen (Compendium of Grape Diseases, APS Press, St. Paul, MN, 1988).

Pearson & Goheen (1998) adopted *Physopella ampelopsidis* (Diet. & Syd.) Cumm. & Ramachar [syns: *Phakopsora ampelopsidis* Diet. & Syd., *Angiopsora ampelopsidis* (Diet. & Syd.) Thirum. & Kern, *Uredo vitis* Thüm., *U. vialae* Lagerh., *Physopella vitis* Arth.] to designate the grape rust agent, a heteroaecious Uredinales with spermogonia and aecia on *Meliosma myriantha* Sieb. & Zucc (Meliosmaceae / Sabiaceae).

*Phakopsora ampelopsidis* was until recently a fungal complex pathogenic to 22 species distributed in seven genera in family Vitaceae (Ono, Mycologia 92:154-173. 2000). Ono (2000) detected three populations within *P. ampelopsidis* which were morphologically and pathogenically distinct. The typical *P. ampelopsidis* formed telia and uredia in *Ampelopsidis* spp., however the species on *Pathernocissus* spp. was shown to be *P. vitis sensu* Sydow, and finally the population on *Vitis* was then shown to be a new *Phakopsora* species, *P. euvitis* Ono. A careful observation of the telium and uredium (Figure 1A) formed in grape leaves collected in Brazil indicated that the fungus belongs to *P. euvitis*. Uredinia are hypophyllous, minute, subepidermical, becoming erumpent, surrounded by cylindrical paraphyses 32-55 µm long. Urediniospores 17-28 x 12-18 µm are obovoid, obovoid-ellipsoid or oblong-ellipsoid (Figure 1B). Telia are hypophyllous and subepidermical. Teliospores 14-30 x 8-12 µm, generally irregularly arranged in 3-4 layers, oblong, oblong-ellipsoid to cylindrical.

In Brazil, the grape rust was first recorded in a commercial vineyard of table grapes (*V. Vinifera* L.) in Jandaia do Sul, Northwestern Paraná State, in March, 2001. However, a field survey showed that the rust was also present in other counties of Paraná State. In 2003, the fungus also was found in Indaiatuba, Itupeva, Louveira and other areas of State of São Paulo.

The rust symptoms are initially small yellowish pustules containing uredinia, which may coalesce to cover portions of the abaxial leaf surface (Figure 1C). On the adaxial face brown necrotic spots develop opposite to the uredial pustules. Pustules are primarily on mature leaves. In advanced stages of disease development, telia appear as light brown to dark brown protrusions near the uredinia. The rust causes early defoliation of plants.

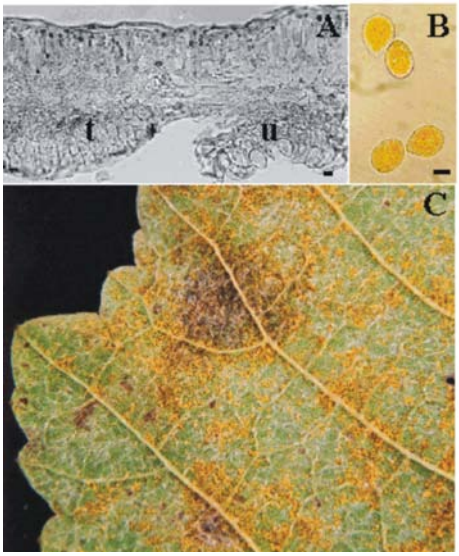


**FIG. 1** - Grape (*Vitis* spp.) rust: A, telium (t) and uredium (u); B, urediniospores; and C, symptoms and signs on leaf. Scale bar = 10 µm

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