

Occurrence of leaf blast on white oats, Italian ryegrass and wheat in Southern Brazil

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Data de chegada: 24/03/2020. Aceito para publicação em: 19/11/2020.

10.1590/0100-5405/235504

Fungi of the genus *Pyricularia* are widely known to cause rice blast and have also infected other commercially important grasses such as forage, wheat and oats. In Brazil, wheat blast was initially identified in northern Paraná in 1985 (1), affecting black oats in 2006 (4), white oats in 2012 (3) and Italian ryegrass in 2001 in Rio Grande do Sul State (5).

At the experimental area of Federal University of Pampa, Itaqui Campus, Rio Grande do Sul State, Brazil, located at 29° 09'19.9"S and 56° 33'16.9» W, on 08/08/2019, plants of *Lolium multiflorum*

Lam. (weed and cultivar 'Barjumbo'), *Avena sativa* L. (cultivar 'IP Esmeralda'), and *Triticum aestivum* L. (cultivar 'BRS Tarumã') were found to have characteristic leaf blast symptoms, which included elliptical to elongate lesions showing white to light brown centers and dark grey to reddish-brown borders (1, 2). Plants with symptoms of blast were collected and prepared for the humid chamber. Leaf regions with these symptoms were sectioned and disinfected in 1% sodium hypochlorite for three minutes, followed by washing with water. Then,

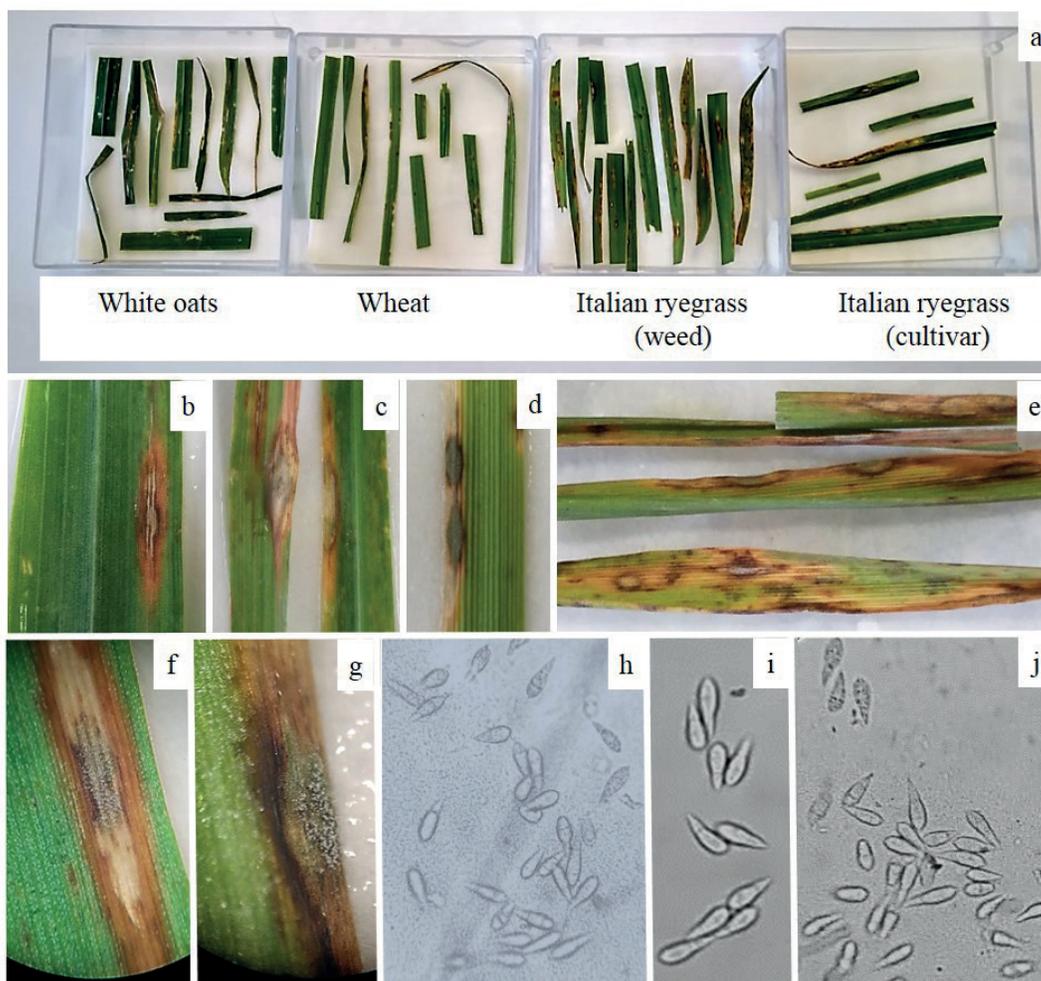


Figure 1. Identification of the fungus *Pyricularia* on leaf samples from white oats, Italian ryegrass and wheat. a- Samples in humid chamber, b and c- White oat blast lesion (Cultivar 'IP Esmeralda'), d- Wheat blast sporulative lesions (Cultivar 'Tarumã'), e- Italian ryegrass blast lesion (Cultivar 'Barjumbo' and weed), f and g- Images obtained under a stereoscopic microscope: conidiophores and conidia of *Pyricularia* on white oat (f) and Italian ryegrass (g) samples, approximately 24 hours in a growth chamber. h-j- Images of *Pyricularia* conidia by light microscopy. h- White oats, i- Wheat, j- Italian ryegrass.

the samples were placed in a “gerbox” containing filter paper and kept at 25°C and 12h light/dark photoperiod, in a growth chamber, for 24 hours (Figure 1a). Under a stereoscopic microscope, Italian ryegrass, oats and wheat samples showed the presence of densely sporulative *Pyricularia* sp. lesions (Figure 1b-g). Hyaline pyriform conidia with three cells typical of *Pyricularia* sp. were observed on the lesions (Figure 1h-j). From the samples, monosporic isolations of the fungus were performed. The fungal colony was peeled into Petri dishes containing oat-agar and maintained for twelve days in a growth chamber (25°C and 12h light photoperiod) until inoculation. Plants of wheat (cultivar ‘Tarumã’), Italian ryegrass (cultivar ‘Barjumbo’), and white oats (cultivar ‘IP Esmeralda’) showing four fully expanded leaves were inoculated with a conidial suspension of *Pyricularia* sp. at 1.0×10^5 conidia/mL, obtained from the respective hosts, for the application of Koch’s Postulates. After inoculation, the plants were subjected to an initial 24h dark period, followed by 12h light, at $25 \pm 2^\circ\text{C}$ and $90 \pm 5\%$ relative humidity. The first symptoms of the disease occurred 48 hours after inoculation. The typical blast lesions were elliptical and had brownish edges and sporulative gray center. Re-isolation of the pathogen from the lesions produced on the inoculated leaves confirmed the occurrence of *Pyricularia* sp. causing blast in the samples.

This is the first report of *Pyricularia* sp. infection in Italian ryegrass, white oats and wheat in the same area, at the western frontier of Rio Grande do Sul State. This is characterized as the main rice producer region in the country; however, wheat and oat crops

are not common in this region, since during the fall the soil remains fallow or covered with pasture. Identification of blast symptoms in these species reinforces the recent attention given to the correct name of the different species of this pathogen, its damage to various countries and grass crops, and the importance of the initial inoculum at the beginning of an epidemic (2).

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