

**Short communication**

## Rice brown spot *Bipolaris oryzae* (Breda de Haan) Shoemaker in Paraguay

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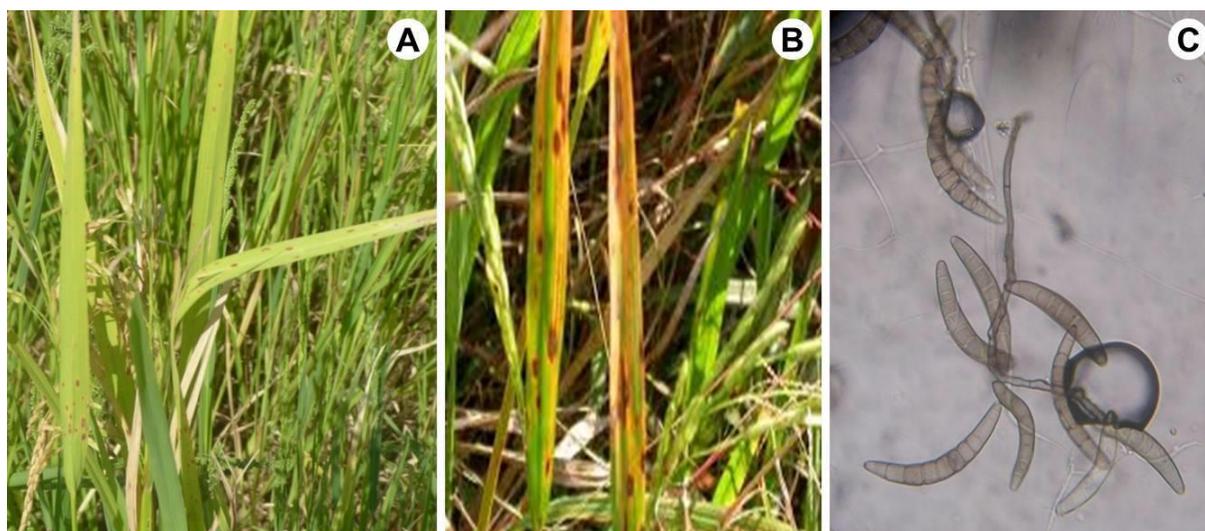
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Brown leaf spot is a serious disease in rice production worldwide, caused by *Bipolaris oryzae* (Breda de Haan) Shoemaker, it is caused losses in stand due to seedling blight, in yield due to leaf and culm infection, and in quality and yield by kernel infection. In the 2014/2015 season, disease survey was conducted in the different rice-growing area of the country. Symptoms were observed on rice plants of IRGA 424 cultivar as leaf spot throughout the growing season, mostly on leaf blade and leaf sheath. Small spots were dark brown to reddish brown, circular to oval in shape, while older spots have a light, reddish-brown or gray center surrounded by a dark to reddish-brown margin.

In the national bibliography no history published about this disease was found, thus the objective of this study was to determine the etiology in this new disease in Paraguay. Naturally, diseased leaves of IRGA 424 cultivar infected in varied degrees with brown spot were collected from various districts of the country. Two hundred leaf samples taken from each field with symptoms and signs of brown spot.

Affected tissues from the leaves were cut into small bits, washed thoroughly in running water to remove dirt. These were dipped in 0.5% sodium hypochlorite (NaOCl) solution for 30–45 seconds and plated on 3 layers of moistened blotters in plastic petri dishes (ISTA 2003). The dishes were incubated at 25–30°C, 12/12 hours light and darkness and examined under a stereomicroscope for the growth of *B. oryzae* after 7–10 days of incubation. Subsequently, the fungus spores were isolated on PDA for the colonies observation.



**Figure 1.** A–B, Symptoms of brown spot on rice leaves; C, Conidia of *Bipolaris oryzae* (Breda de Haan) Shoemaker.

The brown spot was detected in green rice plants at reproductive stage in IRGA 424 cultivar grown in the departments of Itapúa, Misiones and Caazapá. The mean disease incidence in leaves was 30–40 %. The disease

has been described in all rice-producing countries in the world such, India, Pakistan, Bangladesh, Egypt, USA, Philippines, Colombia, Brasil and Perú (Ou 1985, Webster & Gunnell 1992, Mew & Gonzales 2002). In Egypt, the disease comes in the second rank after blast disease (El-Wahsh 1997). Gutiérrez *et al.* (2000) and Farias *et al.* (2011) reported the identification of *Bipolaris oryzae* and *Bipolaris* spp. in seed lots of Northern of Argentina and Rio Grande do Sul State, Brasil respectively.

The symptoms observed in this survey were similar with those described by Ou (1985), Webster & Gunnell (1992), Mew & Gonzales (2002). Symptoms are visible as small and circular dark brown spot, sometimes purple brown spots to ovalbrown spots with gray centers distributed on all leaf surface (Fig. 1A, B). Mycelia is gray to dark greenish gray and conidiophore septate, solitary, or in smallgroups; straight or flexuous, simple; pale to mid-brown; bearing conidia at the end and on sides. Microscopically conidia of *Bipolaris oryzae* club shaped to cylindrical, generally curved, light brown to golden brown, with 6 to 13 transverse cell walls (Fig. 1C) and were similar to those described by several authors (Ou 1985, Mew & Gonzales 2002).

The causal agent of rice brown spot was identified as *Bipolaris oryzae* (Breda de Haan) Shoemaker. This is the first report of the disease in Paraguay.

#### ACKNOWLEDGEMENT

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