Title: Mycobiota of rice and fungi producing aflatoxins

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Abstract:

The rice (*Oryzea sativa*) stands out as one of the most produced and consumed grains in the world, taking part in the diet of millions of people. Brazil is the 9th largest world producer, the production is common throughout the country, but five states are the major producers: Rio Grande do Sul, where predominates the irrigation production, followed by Santa Catarina, Mato Grosso, Maranhão and Tocantins. The rice quality and safety are directly related to the presence of mycotoxin producing fungi. Rice can be infected by fungi before the harvest by the genus *Fusarium* spp., and after harvest, during the drying step or storage by genus *Aspergillus* spp. and *Penicillium* spp. Among the mycotoxins found in the rice stand out more often: aflatoxins (AFs), ochratoxins A (OTA), deoxynivalenol (DON), zearalenone (ZON) and Fumonisin (FUM). This study aimed to determine the mycobiota and the presence of aflatoxin producing fungi in rice samples at different steps of rice production: field, processing (polished rice, husk and bran) and marketing (polished and brown rice) in the states of Maranhão (dryland rice) and Rio Grande do Sul (irrigated rice). So far a total of 103 samples were analyzed: soil where rice is planted (6), field (21), drying (2), processing (18), storage (4) and commercial (52). The mycobiota presented was very variable, however, the most common fungi in the field samples and the drying step were *Fusarium* spp. and black molds group. The processing steps, storage and commercial, which showed low water activity average, there was high frequency of the genus *Eurotium* spp., *Penicillium* spp. and *Aspergillus* spp. A total of 61 strains were isolated from *Aspergillus* section *Flavi* in 18 samples, but only 4 (6%) were positive for AFs production. The presence of aflatoxins in rice samples are being analyzed, as rice is daily consumed by the majority of the Brazilian population, and the incidence of this toxin should be investigated.

Key-words: Rice, Aflatoxins, Aspergillus

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