

Full Length Research Paper

Isolation and *in-vitro* assessment of antagonistic activity of *Trichoderma* spp. against *Magnaporthe oryzae* Longorola strain causing rice blast disease in Mali

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***Pyricularia oryzae* (*Magnaporthe oryzae*) causes blast diseases in rice (*Oryza sativa*) in Mali. The losses could reach 90% of production during rainy weather conditions. Isolation and characterization of *M. oryzae* and *Trichoderma* species were carried out to assess the importance and distribution of the pathogen and antagonist *Trichoderma* species in rice fields in Sikasso (Mali), and select, *in vitro*, *Trichoderma* species with high pathogen biocontrol activity. In the pathogen isolation, only one isolate of *M. oryzae* were obtained, while 12 *Trichoderma* isolates were obtained. In the fungal growth tests three isolates of *Trichoderma*: *Trichoderma harzianum* S31, *T. harzianum* S32, and *T. harzianum* S33 highly inhibited the growth of the pathogen with a coefficient of antagonism of 0.55, 0.71 and 0.78 respectively. These isolates were selected for further greenhouse and field tests.**

Keys words: Rice blast disease, *Trichoderma*, *Magnaporthe oryzae*, *Pyricularia oryzae*, antagonism, *Oryza sativa*, Mali.

INTRODUCTION

Rice (*Oryza sativa*) is a staple food and cereal crop for more than half of the population in Mali where agriculture drives the national economy (ZEF, FARA, IER (2017)) Mali is one of the top rice producers in West Africa with a 3.19 million tons of rice produce in 2019 (FAOSTAT, 2019). Unfortunately, the country is also particularly vulnerable to agricultural diseases (Gurr et al., 2011),

mainly rice blast diseases, which limit rice yields to below the global average, threatening smallholder farmers' livelihoods as well as food and economic security (USDA, 2012; Asibi et al., 2019; Soullier et al., 2020).

The fungal plant pathogen *Magnaporthe oryzae*, involved in causing serious blast diseases in rice in Mali, is very difficult to manage. At present, the losses caused

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