

ANTIFUNGAL ACTIVITY OF BIOACTIVE MOLECULES ISOLATED FROM AGRICULTURAL WASTE AGAINST RICE BLAST FUNGUS

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Text

Developing chemicals with antifungal activity from agricultural wastes is a promising approach to reduce the environmental impact of disease management strategies in plant protection and potentially a valuable source of novel modes of action. *Pyricularia oryzae* is able to infect rice plants at all stages of development such as leaves, stems, nodes and panicles. The almost exclusive use of chemical fungicides, e.g. strobilurins, for rice blast managements increases the risk of emergence of fungicide resistant strains. The goal of our study was to extract bioactive compounds from grapevine wastes assessing their efficacy against *P. oryzae* strobilurin-resistant and -sensitive strains. We tested 28 compounds on two strobilurin-resistant and two sensitive *P. oryzae* strains, both on spore germination and mycelium growth inhibition. One compound inhibited the mycelial growth of resistant strains by 32% and that of sensitive strains by 58% at 0.06 mM concentration. Other two compounds completely inhibited spore germination of the resistant strains at 1mM without inhibiting mycelium growth. This preliminary work will pave the way for the synthesis of nature-derived compounds possibly acting on diverse cellular targets, exhibiting dual or multiple modes of action.

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EFFICACY OF IN-FURROW FUNGICIDE APPLICATION TO MANAGE SOUTHERN BLIGHT IN MISSISSIPPI PEANUT FIELDS.

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Text

Southern blight (SB), caused by *Athelia rolfsii* (AR) is a soil-borne fungus that can cause losses of up to 80%. Symptoms are water-soaked lesions, yellowing, wilting, and plant death. Currently, fungicides are used to manage the disease. This study was conducted to test the efficacy of in-furrow fungicide applications to control SB. In 2022, a field study was conducted in Stoneville, MS to evaluate the effect of in-furrow fungicides on the severity of AR, in peanut. Seven fungicides (Quadris, Solatenol, Omega, Velum, Proline, Elatus, Revytek) and a non-treated control were evaluated in a RCBD with four replications. Each plot was planted to four rows of 'Georgia-06' in Bosket fine sandy loam. During planting, two rows of each plot were inoculated with sterilized millet colonized by AR, and two rows were left non-inoculated. Stand counts, vigor, and phytotoxicity were collected at 15 and 30 DAP, and disease severity was recorded at 90 and 110 DAP. The data collected were analyzed using ANOVA in R studio software. No significant differences were observed in the severity of AR among the treatments; however, there was a numerical reduction of 11% in the incidence of AR in the plot treated with Elatus compared to the control. Despite no significant differences in yield, an average increase of 13% was observed in plots treated with Omega.