Plants vs. Fungi

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Plantations of Guandu bean (Cajanus cajan, Fabaceae) are attacked by the fungus Colletotrichum cajani (Glomerellaceae, Ascomycota) which causes severe anthracnose in stems, leaves and pods of the mature plant. The project Plants vs. Fungi arises with the idea to find a biological control for anthracnose of guandu using native plants of Panama. The objective of the project is to investigate the in vitro inhibitory capacity of extracts of native plants against C. cajani. Monosporic cultures of C. cajani were grown in MEA and PDA and one and three day old extracts in 70 % ethanol were prepared from the following plants: bala (Gliricidia sepium, Fabaceae), ruda (Ruta graveolens, Rutaceae), desbaratadora (Justicia sp., Acanthaceae) and leaves of young plants of guandu. For bioassays fungal cultures of four days old were used, four wells were perforated around each colony and plant extracts at concentrations of 100 %, 75 %, 50 % and 25 % were applied. Major growth inhibition of C. cajani occurred using one day old extracts of Ruta graveolens and Cajanus cajan and one and three days old extracts of Justicia sp. Additionally it was found that the fungal contamination Paecilomyces sp. had a negative effect on the growth of strains of C. cajani. The negative effect of ethanol on the growth of C. cajani, the variation of the agar concentrations in solid media and the age of applied extracts has to be taken into account for the interpretation of the results. Due to the fact that antimicrobial effects are unknown for the majority of native plants of Panama, it is recommended to continue with bioprospecting studies, using more advanced protocols for extract purification and applying standardized methods for bioassays

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