Bioprospects Capable of Inhibiting the Proliferation of Pathogens (fungi) Affecting Musa acuminata x Musa balbissiana

Rodriguez-Reyes, Mireilys (School: Specialized School of Science and Mathematics Genaro Cautino Vazquez)

Musa acuminata x Musa balbissiana, also known as plantain, is one of the main nutritional sources in the world. They are grown in more than 130 countries, with a yearly production of 30 million tons. These 30 million tons play a ginormous role in the economy of numerous countries, generating a great quantity of income, jobs, and demand. Nevertheless, emerging pathogens are drastically affecting the plantain crops, making it hard to harvest good products. That is why, this research is focused on finding bioprospects that can function as a sustainable alternative for biological control, preventing plantain plant diseases. Bioprospects are microorganisms isolated from the environment that may have activities with biotechnological and bioremediation applications. Subsequently, the search for bioprospects capable of inhibiting the proliferation of plant pathogens affecting Musa acuminata x Musa balbissiana started. Bacteria were isolated by exposing Nutrient Agar plates to the air. After purification, three potential bioprospects were selected for inhibition assays against three pathogens isolated from Musa acuminata x Musa balbissiana. After incubation for 7 days at 37oC, it was found that two bioprospects were able to inhibit the growth of one pathogen. The pathogen inhibited was identified as Fusarium spp. through a wet chamber method followed by a microscopic analysis of its morphology. In conclusion, two bioprospects isolated from the air showed inhibiting properties against one of the most fastidious pathogens isolated from Musa acuminata x Musa balbissiana. This sustainable alternative can prevent unemployment, decay in the economy, and assure food safety for every country.

Awards Won: