Use of Bio Ferments in the Biological Control of Moniliasis (Moniliophtora roreri) in Cocoa (Theobroma cacao)

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Monilia (Moniliophtora roreri) is a fungus that causes cocoa plant death. It first appeared in the Southern and Pacific regions of Costa Rica. It is considered as one of the most important limiting factors in cocoa fruit quality; resulting in losses ranging between 30% and 70%of the country's production. Bioferments are used as biological control thanks to many benefits derived from the associations and symbiosis between these microorganisms and the cocoa tree, which are even able to attack the pathogen. A bioferment was developed using ripe cocoa fruits with don't visible damage, potable water and brown sugar. It was submitted to the Medical Bacteriology Laboratory at the University of Costa Rica for microbiology analysis; the most frequently identified bacterias were: Bacillus pumilus, Bacillus megaterium, and Leuconostoc pseudomesentoide. The bioferment was applied to monilia-infected cocoa trees with an incidence disease of 65.32%; resulting in a 97.3% reduction of the monilia incidence attributable to the application of the bioferment these application. It is concluded that large-scale regular and continuous applications of the bioferment, could become a promising alternative for family-scale agriculture. Thanks to the eradication and control of the disease on the cocoa fruits, it could improve the quality of the fruit and prevent production and financial losses.

Awards Won:
Third Award of $1,000