Extracts of the Lecanicillium lecanii Fungus as Biological Controller of Coffee Leaf Rust in Turrialba, Costa Rica

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The following research is the study and use of the Lecanicillium lecanii fungus as bio-controller of Coffee Leaf Rust (Hemileia vastatrix) in coffee plantations affected in the Turrialba area, as an effective and sustainable alternative for coffee growers. The main priority of the study is to verify the effect the Lecanicillium lecanii has on injuries caused by Hemileia vastatrix in coffee plantations and to determine whether these can be controlled. We proceeded to extract and grow samples of the Lecanicillium lecanii fungus in coffee plantations, in order to carry out tests in the laboratory as well as in the field, and to analyze its effects and properties on the Hemileia vastatrix. Among the main findings, stands out the effectiveness of the Lecanicillium lecanii to control coffee Rust in 93.67% in infected coffee leaves, which were analyzed in the laboratory and in 84.22% in plants analyzed in the field. It was determined that the Lecanicillium lecanii has a mutualistic symbiotic relationship with the coffee plant to remove Coffee Leaf Rust and that the properties and effects of such fungus make it an effective antagonist and controller of the Hemileia vastatrix pathogen. The use of the Lecanicillium lecanii is proposed as an effective means to reduce the use of chemical pesticides that have a negative impact on both, the environment and people’s health; finally, this alternative represents a viable and potential option to eradicate the fungus, due to its effectiveness, resulting in benefits for the producer and the country.

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