



# CLIMATE CHANGE:

SCIENCE AND TECHNOLOGY IN  
MITIGATING ANTHROPOGENIC ACTIONS

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PROJECT

## WEED BIOCONTROL WITH *Trichoderma Koningiopsis*: A SUSTAINABLE ALTERNATIVE TO CHEMICAL HERBICIDES

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In productive agroecosystems, weeds grow spontaneously, competing with crops for essential resources. Considering the negative effect of herbicides on the environment and human health, alternative biological sources can be used to produce new herbicides that fulfill their respective functionalities, walking in synergy with the preservation of the environment. The present work aims to evaluate the efficiency of different concentrations of bioherbicide based on *Trichoderma koningiopsis* at different weed stages and in conjunction with agrochemical products. The microorganism *T. koningiopsis* was chosen for the project due to promising results in previous research at the Laboratory of Microbiology and Bioprocesses and the Laboratory of Agroecology, of the Federal University of Fronteira Sul – Erechim Campus, RS. The research will be carried out in three locations, in laboratory, a greenhouse, and an experimental area. First, laboratory fermentation of the microalgae will be carried out to evaluate their chemical and enzymatic factors. In the greenhouse, weeds will be sown in vermiculite and sand substrate. The applications of the extract will be carried out using the pure extract in different concentrations and conjunction with synthetic products. The weeds used will be *Lolium multiflorum*, *Conyza spp.*, *Ipomoea ssp.*, *Amaranthus spp.*, and *Digitaria insularis spp.* For the analysis of the data from the first two stages, analysis of variance (ANOVA) will be used through the Protimiza Experimental Design software. The outdoor experiment will be with the use of the randomized block design (DBC), performing three replications per treatment. The results will be analyzed with the Sigma Plot, following the guidelines of Tukey's test with a probability of 5%. With this, it is expected to confirm the efficacy of the bioherbicide based on *T. koningiopsis* in weed control, acting as a tool to maximize the sustainability of the agroecosystem and production efficiency.

**Keywords:** Agricultural practices, Biological weed control, Bioprocesses, Regenerative agriculture.

