

ABSTRACT

Andrea Kezia Ulihta. 24020219140078. Potential of Liquid Smoke Biofungicide From Rice Husk as Anti-fungal Against *Fusarium oxysporum* In Variation of Concentration. Supervised by Susiana Purwantisari dan Nurhayati.

Fusarium wilt disease, caused by the soil-borne pathogenic fungus *Fusarium oxysporum*, poses a serious threat to the productivity of red chili plants, while its control remains dependent on synthetic fungicides that negatively impact the environment and health. This research aimed to evaluate the effectiveness of liquid smoke from rice husk waste as an alternative biofungicide and to determine its optimal concentration for inhibiting the growth of *F. oxysporum*. The study was conducted *in vitro* using the well diffusion method on *Potato Dextrose Agar* (PDA) media, employing various concentrations of liquid smoke (10%, 20%, and 30%), along with a positive control (Antracol) and a negative control (aquadest). The measured parameter was the diameter of the inhibition zone after a 7-day incubation period. The results indicated that rice husk liquid smoke effectively inhibited the growth of *F. oxysporum* in a dose-dependent manner. Statistical analysis using ANOVA and the LSD test ($\alpha = 0.05$) confirmed that the 30% (9.50 mm) and 20% (7.15 mm) liquid smoke treatments not only exhibited the highest inhibitory activity but were also significantly superior to the synthetic fungicide Antracol (3.00 mm). Based on these findings, it can be concluded that rice husk liquid smoke has significant potential to be developed as an effective and environmentally friendly biofungicide for controlling fusarium wilt disease.

Keywords: *Liquid Smoke Rice Husk, Natural Fungicide, Fusarium oxysporum, In vitro Assay*