

***UTILIZATION OF BETEL LEAF EXTRACT (*Piper betle* L.) TO CONTROL
FALSE SCRATCH (*Ustilaginoidea virens*) IN RICE PLANTS***

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ABSTRACT

Rice is the main food crop in Indonesia. During its cultivation, rice plants are susceptible to attacks by plant pests and diseases. One of the major diseases affecting rice is false smut disease. This study aimed to determine the effectiveness of betel leaf (*Piper betle* L.) extract in controlling false smut disease in rice plants. The research was conducted from July to November 2025 at the Bioscience Laboratory of Politeknik Negeri Jember and a rice cultivation field in Pakis Village, Panti District, Jember Regency, East Java. The laboratory experiment was arranged using a Completely Randomized Design (CRD) with a non-factorial design consisting of five treatment levels and four replications, resulting in 20 experimental units. The treatments consisted of P0 (control), P1 (1%), P2 (2%), P3 (3%), and P4 (4%) concentrations of betel leaf extract. The field experiment was conducted by comparing two plots, namely the control plot and the betel leaf extract treatment plot. The observed variables included microscopic observation of *Ustilaginoidea virens*, GC-MS analysis, growth inhibition assay, plant height, disease intensity, disease incidence, and dry grain weight per sample. The results showed that the 4% concentration of betel leaf extract was the most effective treatment in inhibiting the growth of *Ustilaginoidea virens*, with a growth inhibition rate of 100%. Observations of plant height, infestation intensity, disease incidence, and dry paddy grain weight per sample indicated that the betel leaf extract treatment did not result in any significant changes compared to the control.

Keywords: *betle leaf extract, False smut, paddy*