APPLICATION OF NATURAL PESTICIDE FROM BABADOTAN LEAF EXTRACT (*Ageratum conyzoides* L.) TO CONTROL THE WHITEFLYPEST (*Bemisia tabaci*) ON EDAMAME PLANTS

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ABSTRACT

Edamame soybeans are a high-value crop that is susceptible to whitefly (*Bemisia tabaci*) infestation. This study identified the active compounds in babadotan leaf extract (*Ageratum conyzoides* L.), determined their effective concentrations against whiteflies, and evaluated their effects on infestation intensity and edamame yield. This study was conducted from July to October 2025. The parameters observed included pest mortality, intensity, and crop yield. GC-MS analysis showed that the babadotan leaf extract contained 75 active compounds, with the dominant components being coumarins (34.77%), *1,2-ethanediol* (10.51%), and *phenolic* compounds (10.21%). Laboratory tests using babadotan leaves yielded an LC50 value of 10.95% and an LC95 value of 50.29%. Field testing of babadotan leaf extract used an LC95 value of 50.29%, while basil leaf extract used an LC95 value of 50%. Field test results showed no significant difference between the babadotan leaf botanical pesticide and the basil leaf extract botanical insecticide in terms of pest attack intensity or crop yield. Nevertheless, babadotan leaf extract has the potential to be used as an environmentally friendly alternative for whitefly control within an Integrated Pest Management (IPM) system in edamame soybean cultivation.

Keywords: *Bemisia tabaci*, Edamame, Pest Control