The Feasibility of Citral and Geraniol Extract from *Cymbopogon citratus* (Lemon Grass) as Liquid Insecticide for *Acheta domesticus* (Crickets)

Alden Nathaniel Oeoen [1], Michael Valentino Hendrata [2], Raymond Kenlee Sugito [3], Patrick Alexander Young [4], Andrew Winson Adikusumo [5]

1. *Alden Nathaniel Oeoen, Xin Zhong School, Surabaya, Indonesia (314241178@xinzhong.sch.id)*
2. *Michael Valentino Hendrata, Xin Zhong School, Surabaya, Indonesia (314241276@xinzhong.sch.id)*
3. *Raymond Kenlee Sugito, Xin Zhong School, Surabaya, Indonesia (314241295@xinzhong.sch.id)*
4. *Patrick Alexander Young, Xin Zhong School, Surabaya, Indonesia (314241288@xinzhong.sch.id)*
5. *Andrew Winson Adikusumo, Xin Zhong School, Surabaya, Indonesia (314241185@xinzhong.sch.id)*

Abstract

Crickets are insects that can be considered as pests that harm our agricultural field. They are cutting the stem base of the seedlings, damaging the young roots, and injuring plants at all growth stages. This problem could reduce the production of agricultural products. To solve, farmers are using chemical insecticides to get rid of the crickets. Chemical insecticides may effectively control the population od crickets but their use poses serious risk to the environment. The chemicals from insecticides often penetrates the soil and contaminates the water. This action disrupt natural ecosystem as beneficial insects like pollinators, predators, and soil microbes are highly vulnerable to insecticide causing their death. It will reduce biodiversity and disturb the ecological balance. To address the health hazards from chemical insecticides, the researchers conducted an alternative way to reduce the population of crickets. Citral and geranoil are natural insecticides found from Cymbopogon citratus (lemon grass). The substances are effective in exterminating insects such as crickets. This study sought to investigate the efficiency of two extraction methods, water and alcohol, and determine which is more efficient in terminating the crickets. The measured time to kill the termites using the alcohol extraction method obtained a mean value of 2.00 minutes, as compared to the water extraction method which obtained a mean value of 5.00 minutes. This means that the alcohol extraction method is 3.00 minutes faster - a 60% increase in time efficiency.

Keywords: crickets, citral, geraniol