

## ABSTRACT

Hanisa Nur Afni. 24020221140057. **Use of Paint with Essential Oil Additives to Protect Sengon Wood from Decay caused by *Schizophyllum commune* Fungus** (under the guidance of Hermin Pancasakti Kusumaningrum and Nurhayati)

*The study aimed to determine the effect of adding lemongrass (*Cymbopogon nardus*), patchouli (*Pogostemon cablin*), and clove (*Syzygium aromaticum*) essential oils in paint formulations on the growth of *Schizophyllum commune* fungus and the durability of sengon wood (*Albizia chinensis*). The study used variations in essential oil concentrations of 5%, 10%, and 15% applied to sengon wood pieces measuring  $6 \times 2 \times 0.5$  cm. The samples were incubated for four weeks, then analyzed visually using the ImageJ application to determine the percentage of mycelium growth and tested for physical resistance by measuring the change in mass before and after the test. The data were analyzed using two-way ANOVA to determine the effect of essential oil type and concentration on fungal activity. The results showed that variations in essential oil type and concentration did not have a significant effect on fungal growth or wood mass change ( $p > 0.05$ ), but biologically there was a tendency for increased essential oil concentration to decrease mycelium growth and mass increase due to fungal colonization. Lemongrass oil had the highest inhibitory effect on fungal growth, followed by clove oil and patchouli oil. The conclusion of this study is that the addition of essential oils to paint formulations has the potential to improve the protective function of paint against biological decay of sengon wood by *S. commune* fungi.*

**Key Words:** *Citronella, Essential Oil, Paint, Schizophyllum commune, Sengon Wood*