

**Inactive Inhibitory Activity of 0.025% Oregano
(*Plectranthus amboinicus*) Essential Oil Lozenge
Against Tonsillar Microbiota**

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Abstract

Lozenges have long been employed as a vehicle for drug administration, particularly for addressing oral health issues like sore throats, typically containing plant-based drugs with potent medicinal properties, such as oregano leaves. However, studies regarding its inhibitory activity, especially in a lozenge form, remain insufficient. Thus, this study focuses on evaluating the effect of 0.025% oregano lozenges on inhibiting tonsillar microbial growth. The sample of tonsillar microbial growth was collected from a 23-year-old 5th year dentistry student of the University of the East - Manila through an oropharyngeal swab, after meeting specific criteria. Steam distillation extraction method was used to obtain the *Plectranthus amboinicus* essential oil (PAEO). In the production process, researchers considered the inert ingredients, heating or cooking temperature, and time of oregano essential oil extract incorporation. A posttest control group design was employed. To ascertain the causal relationship, an agar well

diffusion test was utilized wherein fifteen agar plates were divided into half containing the oregano essential oil lozenge (OEOL) and peppermint essential oil lozenge (PEOL). After 18 hours of incubation, both groups exhibited a distinct halo-like appearance with a 6 mm zone of inhibition (ZOI), indicating ineffectiveness against tonsillar microbiota. Guevarra's index was employed to interpret the ZOI where <10 mm diameter indicates inactive inhibition, concluding that PAEO at 0.025% concentration is ineffective as a primary ingredient in lozenge production for inhibiting tonsillar microbiota.

Keywords: oregano, lozenge, *Plectranthus amboinicus* essential oil (PAEO), oregano essential oil lozenge (OEOL), peppermint essential oil lozenge (PEOL)