

ABSTRACT

FORMULATION AND EFFECTIVENESS TESTING OF INSECTISIDE SPRAY FROM ORANGE PEEL (*Citrus sinensis*) AND GREEN APPLES (*Pyrus malus L*) WITH ECO-ENZYME METHOD AGAINST DYPTHERA

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Eco-enzyme is an alternative utilization of organic waste into a product with high economic value and benefits. Eco enzyme is often referred to as a multipurpose liquid because it can be used both in the household, agriculture, animal husbandry and industrial fields. Examples of these uses include natural cosmetic ingredients, natural medicinal ingredients, floor cleaners/disinfectants. Eco-enzymes can also reduce greenhouse gases and prevent excessive greenhouse effects that lead to global warming. Eco-enzyme is a liquid extract produced from the fermentation of leftover vegetables and fruits with brown sugar or molasses as a substrate.

The purpose of this study was to study the manufacturing process and determine the effect of adding the active ingredient Eco-enzyme from waste orange (*Citrus sinensis*) and green apple (*Pyrus malus L.*) peels on the product formulation of Fly Repellent liquid. To produce *Eco-enzyme* liquid, the way to make Eco-enzyme takes 3 months for fermentation.

After 3 months, the Eco-enzyme Characteristics Test made from orange and apple peels was carried out including organoleptic observations in the form of odor, color, pH, and volume. The results of the characteristic test are cloudy brown color, sour smell of orange peel and a little bit of vinegar that is pungent and fresh, the pH is below 4.0 and the initial volume of 500 ml is reduced to 400 ml.

Then, the eco-enzyme was diluted by taking 15 ml of Eco-enzyme fermented liquid, then added to 500 ml of water and shaken, then the diluted Eco-enzyme solution was sprayed onto the prepared object.

Keywords : *Eco-enzyme, Citrus sinensis peel, Pyrus malus L.*