

**ANALYSIS OF THE EFFECT OF TEMPERATURE,  
CONCENTRATION, TIME, SALINITY, AND PH ON THE  
PERFORMANCE OF THE MIXTURE OF COMMERCIAL  
DEMULSIFIER AND LOCAL MATERIAL USING THE BOTTLE  
TEST METHOD**

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**ABSTRACT**

*Emulsions are a mixture of two types of immiscible fluids. Emulsions often occur during the production process. The emulsion must be broken down into oil and water phases so as not to interfere with the oil processing. Emulsion stability is influenced by temperature, concentration, time, salinity, and pH. In general, this emulsion problem is often overcome by using a demulsifier, while in this study the addition of local ingredients to the demulsifier. The purpose of this study is to see the effect of the performance of the mixture of the demulsifier and the most optimum formulation in the change in water separation volume by looking at the parameters that affect the stability of the emulsion.*

*This research was carried out in the laboratory using a bottle test method which is a method on a laboratory scale to testing the appropriate demulsifier for the field and certain types of emulsions. With this method the demulsifier can separate water and oil quickly with the lowest possible moisture content. This Method of bottle test is one of the most common and suitable methods for solving water emulsion problems in oil that is by using light oil available in the laboratory and some local materials such as Citrus Limon, Citrus Hystrik, and Liquid Soap which are used as formulations. This test is carried out by entering the prepared formulation into a bottle which is then put into a water bath for 3 hours and observed for 30 minutes with different conditions of temperature and concentration. Then the data was tested by processing statistics using Minitab software which was used to see the effect of parameters on the results of separation obtained in the test.*

*From the results of testing several conditions of temperature, pH, different salinity concentrations and the time or duration of testing, the addition of local materials to the performance of the demulsifier is quite effective in the separation of oil-water emulsions. The research found that the most effective formulation in the separation was the demulsifier with lemon formulation with a concentration of 5 ml at conditions of 70°C, salinity of 1.000 ppm, pH 7, and testing duration of 180 minutes with a separation of 34 ml or 97,14%.*

**Keywords:** *Emulsions, Demulsifier, Local Materials.*