

**PENGARUH KADAR MINYAK TERHADAP EFEKTIVITAS ANTIOKSIDAN  
DALAM SISTEM EMULSI OIL-IN-WATER**

**[The Effect of Oil Concentration on the Antioxidants Effectivity  
in Oil-In-Water Emulsion System]**

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**ABSTRACT**

*The oxidation of lipids in emulsified form is more complex than that in bulk lipids. In the emulsified form, there are more variables influencing lipid oxidation, including oil concentration, type and concentration of emulsifier, pH and buffer system. The aim of this research was to study the effect of com oil concentration on antioxidant effectivity of Oil-In-Water emulsion system.*

*The effectiveness of antioxidants in the system were determined by Rancimat. Hydroperoxides content was also determined during live days of oxidation. The polarity of antioxidant was measured by determining the partition coefficient in octanol-water system (1:1). The partition coefficient of butylated hydroxy toluene (BHT) was 10.19 (90.0%).  $\alpha$ -tocopherol was 8.44 (89.4%). t-butylhydroquinone (TBHQ) was 3.98 (79.9%), hydroquinone was 1.60 (61.5%). Trollox was 0.47 (32.0%) and gallic acid was 0.04 (4.4%).*

*The increase of oil proportion from 10% to 50% in emulsion system improved the oxidative stability of emulsion. The lower antioxidant polarity could increase the effectiveness of antioxidant in emulsion system with 10% com oil proportion. The effectiveness of antioxidant was not absolutely depended on the order of polar paradox. The effectiveness was more influenced by its hydrogen donating capability and physicochemical properties of the emulsion system.*

*Key words: Antioxidant, emulsion, com oil, polarity, partition coefficient polar paradox*