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Oil blends as biolubricant: Screening of effect factors influence to basestock

Abstract

The price fluctuation and negative environmental effect of mineral oil-based lubricant are the main factors which instigate the research on high-oleic vegetable oil as its possible replacement. In this study, the factors involved in blending process of waste cooking oil (WCO) and *Jatropha curcas* oil (JCO) as biolubricant basestock were investigated using 2-level factorial design. The molar ratio of WCO to the JCO (WCO:JCO), stirring speed and blending times were the three factors studied. The WCO:JCO, stirring speed and the blending time were found to be significant to the increased of oleic acid content in the basestock. The highest percentage of oleic acid achieved was 53.31 % at molar ratio of WCO:JCO at 20:80, 350 rpm and time at 30 minutes. Thus this study exposed the potential of new blending oil which are comparable with other vegetable and mineral oils as base stock for bio-lubricant in term of fatty acid compositions.

Keywords; 2-Level Factorial Design, Biolubricant Basestock, Oil Blends, Oleic Acid