

Synthesis of Ethoxylated Amide as Bactericide to Enhance the Storage Period of Diesel Fuel Nanoemulsions

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Abstract : This paper aims to the synthesis of new ethoxylated amide as bactericides to prevent the growth of Gram +ve and -ve bacteria of water-in-diesel fuel nanoemulsions over a long period of time as three months. To realize it, eight kinetically stable water-in-diesel fuel nanoemulsions differing in surfactant concentrations and water contents ranging from 4 to 8 and 5 to 8 wt.,wt.,% of total weight of the nanoemulsions, respectively were formed at a temperature of 20 °C. The performance of this ethoxylated amide as bactericides agents against two strains of Gram-negative bacteria, namely, *Pseudomonas aeruginosa* and *Escherichia coli*, and two strains of Gram-positive bacteria namely, *Staphylococcus aureus* and *Bacillus subtilis*, were evaluated as antimicrobial agents. The maximum and minimum antimicrobial activities were 85 and 71 % against *S. aureus* and *E. coli*, respectively, at a concentration of 5 mg/l, pH 7, and 37 °C.

Keywords : nanoemulsion, bactericide, diesel fuel, emulsifier

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