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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, bacteriocide, diesel fuel, emulsifier
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