Conference Paper

Nano Augumented Biosurfactant Formulation for Oil Recovery in Medium Oil Reservoirs

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Authors:

Oluwasanmi Olabode

Ifeanyi Seteyeobot

- Heriot-Watt University

ojo temiloluwa

Tomiwa Oguntade

- University of North Dakota

Citations (3)

References (7)

Abstract

Production from most oil field using waterflooding has proven not to produce residual oil due to numerous factors. Several recovery mechanisms have been applied which to an extent has its own influence both on the environment, percentage recovery and also the cost of purchase. In this blending process the bio-surfactant derived from jatropha oil at different concentrations were

augmented with nanoparticles for core flooding experiment. A blend of Bio-surfactant and nanoparticles (B-NPs) is a dual purpose recovery mechanism which alters surface wettability, improves fluid mobility, solubility improvement and stabilizes the foam and emulsions formed. At the surface of the nanoparticle, a single layer is formed by the bio-surfactant which is an electrostatic based interaction given rise to particles that are oil loving. Encouraged greatly by electrostatic interactions, the surfactant will then become a monolayer on the nanoparticle surface, resulting in more hydrophobic particles. The impact of the various particle sizes will be considered to analyze to stability of each BNPs concentration for residual oil recovery. During the laboratory core flooding experiment on Berea cores, the results shows that the nanoparticle-stabilized emulsions increased the oil recovery rate by 8% after water flooding and reduction in the interfacial tension was at the minimum approximately 25 to 1 mN/m

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... It contains high dietary fibre with unusually large amount of α-linolenic acid(ALA), hence they are green and biodegradable [1][2][3]. This linseed derived surfactant are produced through a combination processes: transesterification and sulfonation as a means of improving the eventual surfactant stability in aqueous solution during chemical flooding applications [4][5][6][7]. The adsorbent (from Berea sandstone core) is of broad distribution after being pulverized, dried, and sieved through different mesh sizes by a sieve-shaker with average gradation size of 325.5μm from 297μm to 354 μm sieve size. ...

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