### Accepted Manuscript

Demulsification of heavy crude oil using new nonionic cardanol surfactants

Ayman M. Atta, Mahmood M.S. Abdullah, Hamad A. Al-Lohedan, Abdelrhman O. Ezzat

PII: S0167-7322(17)34836-5

DOI: https://doi.org/10.1016/j.molliq.2017.12.154

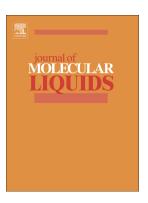
Reference: MOLLIQ 8450

To appear in: Journal of Molecular Liquids

Received date: 11 October 2017 Revised date: 28 December 2017 Accepted date: 29 December 2017

Please cite this article as: Ayman M. Atta, Mahmood M.S. Abdullah, Hamad A. Al-Lohedan, Abdelrhman O. Ezzat, Demulsification of heavy crude oil using new nonionic cardanol surfactants. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Molliq(2017), https://doi.org/10.1016/j.molliq.2017.12.154

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



## **ACCEPTED MANUSCRIPT**

## Demulsification of Heavy Crude Oil Using New Nonionic Cardanol Surfactants

By

Ayman M. Atta<sup>1</sup>,\* Mahmood M. S. Abdullah <sup>1</sup> Hamad A. Al-Lohedan<sup>1</sup>, and Abdelrhman O. Ezzat<sup>1</sup>

<sup>1</sup> Surfactants research chair, Chemistry department, college of science, King Saud University, Riyadh 11451, Saudi Arabia. (\* E-mail: aatta@ksu.edu.sa)

Abstract: Amphiphilic materials based on natural products and biomaterials attracted great attention to replace the petroleum based oil field chemicals as environmentally and ecofriendly materials. The present study modified and characterized the chemical structure of cardanol produced from cashew nut oil with amines and glycols to produce new ionic surfactants. The surface and interfacial activities of the prepared nonionic cardanol surfactants were investigated to study their adsorption at water and oil surfaces. The ability of the cardanol surfactants to act as asphaltene dispersant and water in crude oil emulsion breaker for heavy crude oil were evaluated and showed good results as single surfactant to acts as dispersant and demulsifier for heavy crude.

**Keywords:** Cardanol; asphaltene; demulsifier; petroleum emulsion; nonionic surfactants.

#### 1. Introduction:

#### Download English Version:

# https://daneshyari.com/en/article/7843295

Download Persian Version:

https://daneshyari.com/article/7843295

<u>Daneshyari.com</u>