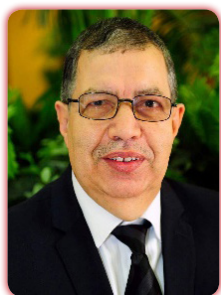


21<sup>st</sup> World

# NANOTECHNOLOGY CONGRESS

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## Omar Chaalal

*Abu Dhabi University, UAE*

### Innovation in oil: A smart green solution to enhance oil recovery

Satisfying worldwide energy demand in the 21<sup>st</sup> century is the most challenging problematic. New kinds of energy sources along with the new technological breakthroughs to maintain enough oil and gas supply are intensely needed to meet the incredible rise in world's energy demand. Recent dramatic fall in oil prices has accentuated the problem. Now, the challenge is to fill out the increasing gap between energy demand and supply with more cost effective techniques. Recently, Abu Dhabi University has filed a patent application (US–Patent Application No 15/342,664) reporting the invention of Dr. Omar Chaalal that fulfills practically all criteria discussed above. In this paper, a “green substitute” to chemical flooding is proposed. The new technology proposed uses two types of plant extracts that increases the total oil recovery to 96% of initial oil in place (IOIP) during the tertiary recovery mode. While water flood recovered around 50% of the IOIP, 0.5% wt of the natural plant extract recovered 77% in the secondary recovery mode. The additives were extracted from two plants available in the United Arab Emirates (Product A and Product B). These natural extracts proved to be very effective in formations containing water with a salinity range of 70,000 to 180,000 ppm with temperature going up to 100° C.

### Biography

Omar Chaalal, PhD from New Castel upon Tyne England and M.S. Eng. from Stevens Institute of technology NJ USA, is an Associate Professor of Chemical Engineering at Abu Dhabi University ADU in the United Arab Emirates. Chaalal is an internationally renowned expert in the separation technologies. He is the inventor of the EnPro Process that deals with the sequestration of carbon dioxide and global warming reduction. He was the Chief Scientist of Enpro As, Norway. He has received a number of honorary degrees, recently August 2017, he has been honored with prestigious IAAM Scientist Medal of the year 2017 for notable and outstanding research in the advanced Material Science & Technology during the award ceremony held in Stockholm August 23rd, 2017. He has authored 60 refereed publications, 3 European patents and over 300 presentations.

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### Notes: