

3rd International Conference on**PHARMACEUTICS & NOVEL DRUG DELIVERY SYSTEM****&**3rd International Conference on**CHEMICAL ENGINEERING & TECHNOLOGY**

December 05-06, 2018

Dubai, UAE

Gasoline fuel octane enhancement with waste additives from by-products for better SI engine performance**Obed Majeed Ali**

Northern Technical University, Iraq

Internal combustion engines are widely used in all walks of life and consume a large share of liquid fuel. Due to their unique specifications and high speed, gasoline engine is used mainly in the transportation sector which considered the main consumer for liquid fuel in many countries. Though the utilization of renewable fuel sources is considered a hot topic now a day, fossil fuel still represents the common fuel for transportation sector. Improving the fuel specifications is an important technology for better engine performance which reduces the fuel consumption in the existing un-modified engines. For gasoline fuel, octane number is an important indicator for fuel quality and combustion efficiency. Fuel additives are

considered one of the most viable methods to improve fuel quality. Waste from by-products is preferable source for fuel additives due to their low cost and reducing environmental pollution. Molasses is a by product from alcohol processing companies, it can convert to fusel oil through fermentation process. Fusel oil is a high octane number additive; moreover, water extraction has been introduced as an excellent method for further octane number enhancement. The octane number of gasoline fuel has been increased significantly with increasing additive ratio in the blend which can successfully contribute in enhancing fuel combustion for better engine performance.

Biography

Obed Majeed Ali is the Director of a Renewable Energy Researches Unit, Technical Institutes of Haweeja, Northern Technical University, Iraq. He did his PhD at Universiti Malaysia Pahang. He is a Chartered Engineer (CEng), Institute of Mechanical Engineers (IMechE) of UK and also registered with American Association for Science and Technology (AASCIT), USA and the Iraqi Engineers Society, Iraq. He has published more than 50 research articles, book and book chapter. He has published more than 25 papers in reputed journals and has been serving as a reviewer for many journals.

obedmajeed@gmail.com

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