



Novel Method for Preparation of Nanoscale NaX zeolite from Vietnamese Rice husk and Kaolinite and its Application in Upgrading low Quality Diesel Fuel

Don N. Ta¹, Hong K. D. Nguyen^{1*}, Quang V. Nguyen² and Duong V. Le¹

1. Hanoi University of Science and Technology, DaiCoViet, Hanoi-10000, **VIETNAM**

2. Petroleum Technical Institute, HaNoi, **VIETNAM**

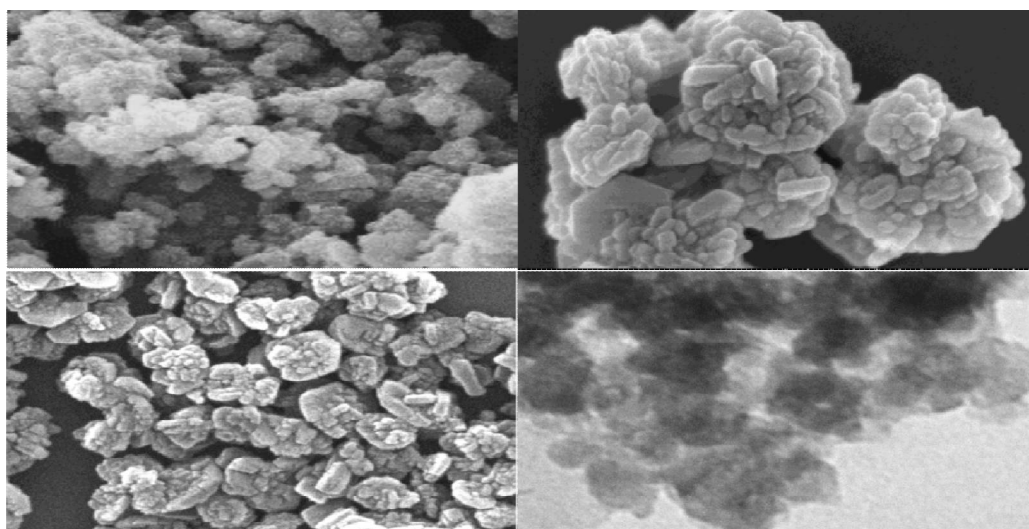
Email: dieuhongprof@gmail.com

Accepted on 15th August, 2020

ABSTRACT

This research covers studies on preparation of nanoscale NaX zeolite from Vietnamese rice husk and kaolinite as sources of silicon and aluminum. The prepared nanoscale zeolite named Nano-NaX is applied in the upgrading adsorption process of low quality diesel fuel. The materials are characterized by X-ray Diffraction (XRD), Scanning Electron Microscope (SEM) and Transmission Electron Microscopy (TEM). The as-prepared material has the crystallinity reached 95% and particle size reached 45 nm. The diesel samples were studied for the composition analysis and commercial criteria analysis. After treatment diesel fuel products fully meet the current commercial specifications of diesel fuel.

Graphical Abstract



SEM and TEM images of the catalyst

Keywords: Nano NaX zeolite, Nanocrystals, Synthesis, Rice husk ash, Kaolinite.