ABSTRACT
Transesterification of Jatropha methyl ester (JME) with common polyol, trimethylolpropane (TMP) produced the TMP based ester which exhibits improved temperature properties. This paper discusses the development and physico-chemical properties of Jatropha biolubricant base oil applicable for ISO VG32 and VG46 requirement. The catalyst employed for the JME was CaO synthesized in National Research Institute for Chemical Technology (NARICT) that gives 100% conversion. The molar ratio of JME to TMP was 3.5:1 and the catalyst (CaO) loading was found to be 0.8% of the weight of the Jatropha oil. The final fractionated Jatropha biolubricant base oil was found to contain 11.95% monoesters, 43.89% diesters and 44.16% triesters (desired product). In addition, it was found that the biolubricant base oil produced is comparable to the ISO VG46 commercial standards for light and industrial gears applications and other plant based biolubricant.