

Renewable Energy and Resources & Energy Materials and Fuel Cell Research

August 27-28, 2018 | Boston, USA

Investigations of non-edible seeds oils in comparison with soybean benchmark for production of biodiesel

Musa Danjaji, Kenneth Okafor, Martin Figura and Valerie Nwajewi
South Carolina State University, USA

The desire to reduce green-house gases due to excessive use of fossil fuels for energy production is a major stimulant for alternative clean sources of energy. One of these alternative sources is biodiesel with vegetable oil as a component. However, soybean oil, which is a major food condiment is the major vegetable oil used in the USA. The present study seeks to explore suitable and sustainable sources of oil from non-edible seed plants that are indigenous to the state of South Carolina. Seed plants were obtained from the wild or purchased. Comparisons of the yields and other physical and chemical properties were determined and compared to soybean oil as the benchmark. All the seeds in this study underwent the same processes in oil extraction and determination of their properties. The physical and chemical properties determined for all seeds were the oil yield, density and the iodine value. Most of the oil samples in this study have characteristics that are comparable to those of the Soybean which is the benchmark sample. For example, most of the oil samples produced yields greater than 7% the yield for the soybean oil. It can also be inferred from this study that any one of the comparable seed plants mentioned above can serve as an alternative feedstock to Soybean in the commercial production of Fatty Acid Methyl Esters (FAME).

Biography

Professor Musa Danjaji is the Academic Program Coordinator for the Nuclear Engineering (NE) program and also serves as the Director, for the Center of Energy Studies at South Carolina State (SC State) University. Prior to coming to SC State, Professor Danjaji held joint appointments as a research scientist/engineer at the Army Environmental Policy Institute and the United States Army Construction Engineering Research Laboratory. He obtained his Masters and Ph.D. in Nuclear Engineering from the University of Illinois, Urbana-Champaign. He has also obtained his Bachelors and Masters in Physics from Ahmadu Bello University in Nigeria.

MBDanjaji@scsu.edu

Notes: