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## Production of biodiesel from non-edible seeds of Jansa (cusonia bateri) using a novel nano catalyst palm bunch ash

**Abstract:**

Biodiesels are a renewable, biodegradable fuels produced from vegetable oils, animal fats, or waste cooking oils. They are alternative clean-burning, biodegradable fuels that are used as replacement for fossil diesel fuel. This work optimized biodiesel production from non-edible seeds of Jansa (Cusonia bateri). Nano-catalyst for the biodiesel production was prepared from palm bunch ash and characterized using BET isotherm, FTIR, SEM-EDX and XRD. The biodiesel production process was designed using Central Composite Design (CCD). Variables namely time, temperature, concentration of catalyst were employed to investigate and optimize the production of biodiesel. The free fatty acid composition was characterized using Gas Chromatography Mass Spectrometry (GCMS). The physiochemical parameters such as density, viscosity, calorific value, acid value, and oxidation stability were equally determined. The use of optimization tools (artificial neural network, ANN, and response surface methodology, RSM) for the modelling of the relationship between biodiesel yield and process parameters (reaction time, methanol to oil ratio, and catalyst concentration) was explored. The kinetics of the transesterification reactions was equally studied. Properties of fatty acid methyl ester (FAME) produced from Jansa oil compared favourably with known standards.

**Biography**

**Egwuatu Chinyelu Ijeamaka** has a PhD in physical/environmental chemistry from Nnamdi Azikiwe university Awka and is currently a senior lecturer in their Pure and Industrial chemistry department. She is the deputy director of JUPEB, a university pre-admission exam board. She has published a couple of papers in reputed journals.