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TOPIC:
LIPID CHARACTERISTICS AND BIO-FUEL POTENTIALS OF SOME AFRICAN PLANT SEEDS

Presented by

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Introduction

- Currently due to gradual depletion of world petroleum reserves and the impact of environmental pollution from increasing exhaust emissions, there is an urgent need to develop alternative energy resources, such as biofuel.
- Lipids are a class of naturally occurring organic compounds insoluble in water, but soluble in most organic solvents and essential for the structure and function of living cells.
- Fats are a subset of lipids, used to produce biofuel commonly used as liquid fuels in place of diesel, gasoline or natural gas in cars, buses, trucks and machinery.
- No net CO_2 emissions are released to the air therefore considered 'climate-neutral'.

Aims and methodology

- *The study examines lipid characteristics and bio-fuel potentials of Jatropha curcus seeds oil (Fig. 1), Elaeis guineensis seeds oil (Fig. 2), Helianthus annus seeds oil (Fig. 3) and Glycine max seeds oil (Fig. 4).*
- *The seeds were collected from Nigeria in Africa cleaned, de-shelled, dried, ground, the lipids (oil) extracted and defatted in a soxhlet apparatus, using n-hexane.*
- *The extracted lipids were obtained by filtration and the hexane removed using rotary evaporator. The physicochemical (oil Content, acid value, % free fatty acids (FFAs), iodine value, saponification value, peroxide value, viscosity and density) analysis of lipids was carried out using official recommended methods while Fatty acid composition was determined using gas chromatography (GC) (Fig. 5).*



Figure 1:Jatropha curcus plant and seeds



Figure 2: Elaeis guineensis plant and seeds



Figure 3: Helianthus annus plant and seeds



Figure 4: Glycine max plant and seeds oil

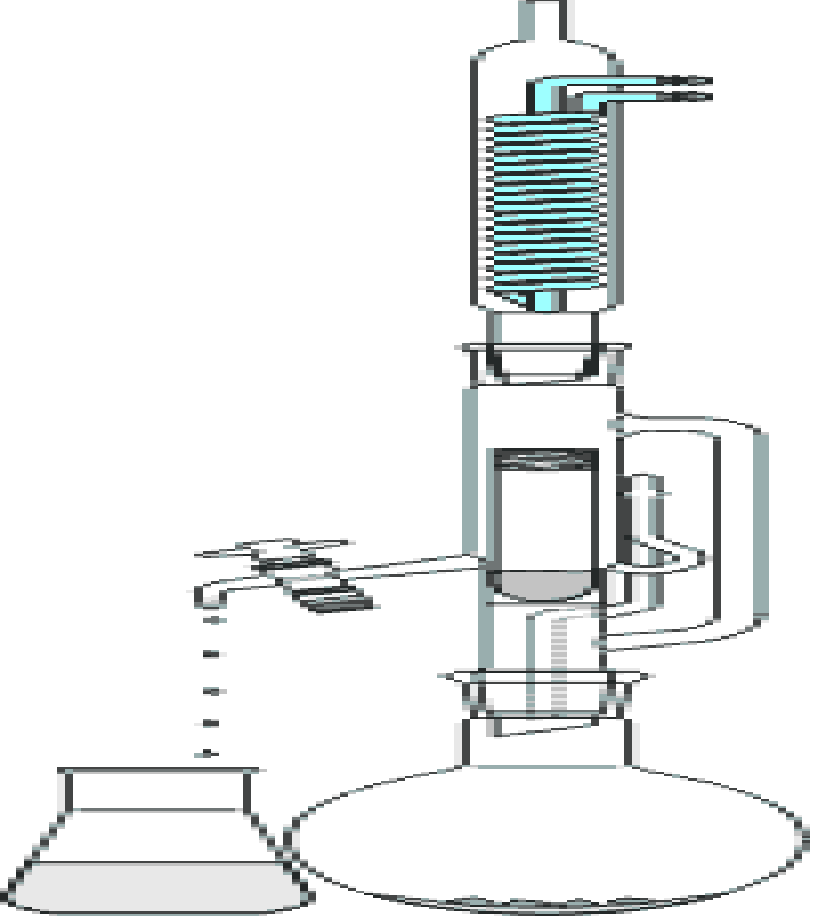
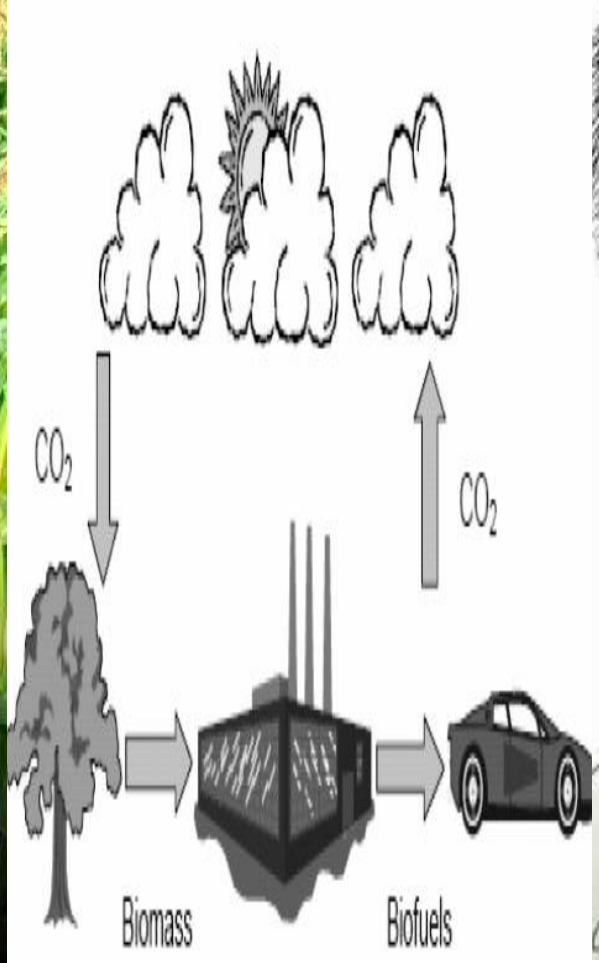




Figure 5: Soxhlet apparatus and gas chromatograph (GC) for Lipid extraction of seeds and determination of Fatty acid composition

Findings indicate that the seeds studied have good potential as feedstock in bio-fuel production.







Biofuels as climate neutral fuels



Thanks for your attention!