FABRICATION OF OIL EXTRACTION MACHINE OF JATRROPHA SEEDS

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Introduction

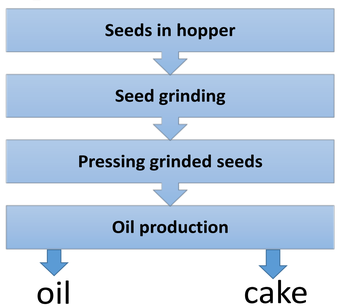
- Jatropha seeds are toxic seeds but consists of bio-fuel characteristic in its oil.
- We construct a Jatropha oil expeller machine which is use to convert the oil from seeds.
- Machine uses friction and continuous pressure to move and compress the seed material & convert it into the oil.

Project Objectives

- Oil from the Jatropha Seeds can be used as alternative fuel and for making biodiesel which aims to overcome energy crisis problems.
- To develop a low cost oil extractor machine which can be used by farmer to convert their Jatropha seeds into Jatropha oil.

Methodology

- Principle behind this equipment is the friction between the cylinder cage and worm shaft assembly.
- Seeds are feeded through the hopper and worm shaft assembly, as soon as the seeds feeded to rotating assembly to get crushed and oil extraction takes place.



Results and Discussion

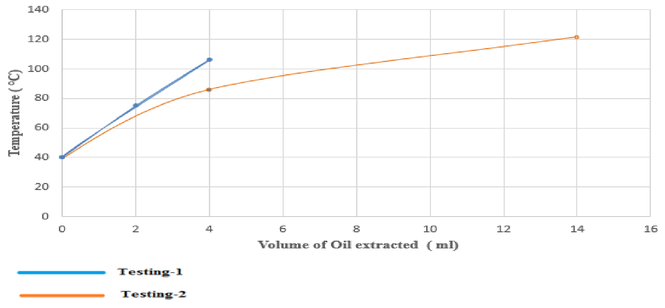
➢ Testing 1:

Parameters	Measurements
Oil extraction rate	0.024 L/hr
Mass rate of seeds	0.12 kg/hr
Oil contents in seeds	0.205 L/kg
Extraction Efficiency	63%

➢ Testing 2:

Parameters	Measurements
Oil extraction rate	0.03932 L/hr
Mass rate of seeds	0.144 kg/hr
Oil contents in seeds	0.223 L/kg
Extraction Efficiency	73.26%

➢ Graph (temperature v/s volume of oil extracted)



Images

Conclusions

- The machine is very applicable for local production, operation, repair and maintenance.
- The automatic operation of the machine saved energy and did not required high skilled labour.

References

- Abdul-Akaba Tijani, Kantiok Obadiah, Haruna Abubakar, "**Design and fabrication of Oil Extraction Machine from Nuts**", Department of Mechanical Engineering, Kaduna Polytechnic Kaduna, Nigeria, International Journal of Scientific & Engineering Research, Volume 6, Issue 1, January-2015 1923 ISSN 2229-5518 IJSER © 2015 http://www.ijser.org.

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