

Jatropha curcas: green gold for the tropics

Opinion

Around 6.7 billion people of the world do not have access to the energy resources. This crisis motivated international researcher's enthusiasm towards *Jatropha* biofuel as an alternative to petro fuel. *Jatropha* hit's the headline as 'Miracle Plant or Green Gold of the Tropics'. The plant is reported to be approximately 70 million years old. In 1737 Karl von Linne first described and in 1753 classified *Jatropha curcas*. It is a member of the large Euphorbiaceae family and consists of 165-175 species. Many collectors provide information that the species *Jatropha curcas* collected from natural vegetation in the Americas and highly probable that the center of origin is in Mexico (the Central America). This species was probably introduced by Portuguese seafarers via the Cape Verde Islands and former Portuguese Guinea (now Guinea Bissau) to other countries in Africa and Asia. *Jatropha* plant is being used as fuel since 1940s in Africa and known as physic nut but in Indian subcontinent it comes into attention as fuel after 1990's. Recently, *Jatropha* oil has successfully been used in small diesel engines in India, Brazil, Madagascar, Thailand, Vietnam, China, Indonesia, and Myanmar.

Among many potential non-edible oil-rich plants (*Azadirachta indica*, *Hevea brasiliensis*, *Calophyllum inophyllum*, *Madhuca indica*, *Ricinus communis*, *Pongamia piñata*, *Mesua ferrea*, *Garcinia indica*, *Mallotus philippines*) of tropics and subtropics *Jatropha* is focusing as a principal candidate for biofuel. *Jatropha* is a very hardy plant and can be grown in low to high rainfall, marginal and degraded soil, but the plant is susceptible to frost. *Jatropha* can provide new income to the poor farmers and help to stop the air pollution because the seed oil serves as a raw material for clean biodiesel. *Jatropha* has a variety of uses from medicine to soap production, insect repellent, drug, cosmetics etc. apart from it being utilized as biodiesel. *Jatropha* biodiesel may provide a portion of the fuel supply in the energy and transport sectors. *Jatropha* is becoming an economically feasible alternative to fast depleting fossil fuels due to its easy cultivation and market demand.

The preferred option of *Jatropha* technology

- i. *Jatropha* plant can be grown to reclaim degraded and barren soil
- ii. It can be cultivated in dry and drought prone areas

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- iii. Propagate easily by seeds or vegetative cuttings
- iv. Use as fence for economic crop lands
- v. Plants are highly insect and disease resistant
- vi. Various uses as traditional medicine to alternative fuel as biodiesel
- vii. Removes carbon from the atmosphere.

The limitation of *Jatropha* technology

- a. Lack of high yielding variety
- b. Poor seed germination rate
- c. Plant cannot tolerate excess water and frost
- d. Uneven fruit ripening which need lots of labor to harvest from the plant
- e. Toxicity in seed oil and cake
- f. Large-scale plantation without the evaluation of the planting materials
- g. Knowledge and basic research gap.

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Conflicts of interest

The author declares that there is conflict of interest.