IJPS INTERNATIONAL JOURNAL OF PLANT SCIENCES
Volume 8 | Issue 1 | January, 2013 | 56-60

RESEARCH ARTICLE

Nutritional value of *Jatropha curcas* seeds and the effect of some physical and chemical treatments- with special reference to Chhattisgarh State

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SUMMARY

Jatropha curcas can help to increase rural incomes, from plantations and agro-industries. *Jatropha curcas* is a valuable multi-purpose crop to alleviate soil degradation and aforestation, which can be used for bio-energy to replace petro-diesel, for soap production and climatic protection, and hence, deserves specific attention. In the present study physical characteristics of *Jatropha curcas* seeds were studied. The average of whole seed mass, kernel weight, shell weight, percentage kernel mass of whole seeds and percentage shell mass of whole seeds were 0.74, 0.51, 0.23, 70.88 gram and 29.12 per cent, respectively. Chemical composition proved that *Jatropha curcas* seeds are a good source of protein (32.91 %), oil (26.92 %) and carbohydrates (30.01 %). The seeds are rich in various micro-elements, that is manganese (Mn), iron (Fe) and zinc (Zn) which recorded 27.99, 0.41 and 45.90 mg/kg, respectively as well as macro-elements, that is potassium (K), calcium (Ca), sodium (Na), magnesium (Mg) and phosphorus (P), which recorded 102.79, 34.13, 8.46, 111.0 and 183.70 mg/kg, respectively.

Key Words : *Jatropha curcas* L., Nutrient, Mineral content, Physical-chemical properties

How to cite this article : Sharma, Prashant, Kaur, Preeti and Shukla, S.K.(2013). Nutritional value of *Jatropha curcas* seeds and the effect of some physical and chemical treatments- with special reference to Chhattisgarh State. *Internat. J. Plant Sci.*, **8** (1) : 56-60.

Article chronicle : Received : 30.07.2012; **Revised :** 22.08.2012; **Accepted :** 16.10.2012

Abundance and availability of energy resources largely determine the economic wellbeing of a country. Energy independence has to be our first and foremost priority (Abdul Kalam, 2005). One of the main crops currently being promoted for biodiesel production in several countries, globally, is *Jatropha curcas*. There have been substantial political and social pressures to promote the growing of such crops in particular *Jatropha curcas* in India, as a means of economic empowerment, social upliftment and poverty alleviation within marginalized communities.

Jatropha curcas is a multi purpose plant belonging to the family Euphorbiaceae with several attributes and considerable potential and has evoked interest all over the topics as a potential biofuel crop (Beet *et al.,* 2002). *Jatropha curcas* is native to Central America and has become naturalized in many tropical and subtropical areas, including India, Africa and North America. Originating in the Caribbean, *Jatropha curcas* was spread as a valuable hedge plant to Africa and Asia by Portuguese traders (Fairless, 2007). It is an all purpose, zero waste drought resistant photo insensitive perennial plant. The species grows in areas with extreme climates and soil conditions that could not be inhabited by most of the agriculturally important plant species (Chandhari and Joshi, 1999).

Jatropha curcas grows throughout most of the tropics. It survives on poor stony soils and can be used to reclaim land (Munch and Kiefer, 1989). *Jatropha curcas* plants start yielding from the second year of planting, but in limited quantity. If managed properly, it starts giving 4-5 kg of seed per plant tree production from the fifth year onwards and seed yield can be obtained up to 40-50 years from the day of

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