

PHYSICO-CHEMICAL PROPERTIES AND EVALUATION OF *JATROPHA CURCAS* SEEDS

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(Received: Mar. 2 , 2010)

ABSTRACT: *The physico-chemical properties, chemical composition, oil constants, minerals content and antinutrients present in *Jatropha curcas* seeds were determined. *Jatropha* fruits contain 3 seeds inside a brown outer husk. The seed it self consists of a white kernel with outer black coat (shell). The average weight of fruit and seed were 2.59 and 0.62 gm, respectively. The percentages of seed, husk, kernel and shell were 72.01, 27.99, 65.24 and 34.76%, respectively. The seed kernel was rich in protein (26.15%) and lipid (51.16%). The contents of starch, total soluble sugars and free reducing sugars were 9.97%, 10.24% and 4.52%, respectively. *Jatropha* seed oil is liquid at room temperature, soluble in organic solvents. Physical properties such as viscosity, specific gravity, colour and refractive index of *Jatropha* oil were 52.60 (cSt), 0.879 (gm/cm³), 4.0 yellow and 1.4735, respectively. The acid, saponification and iodine values of *Jatropha* seed oil were 5.58 mg KOH/gm oil, 192 mg KOH/gm oil, and 102.29 mg I₂/gm oil, respectively. The major fatty acids found in the oil sample were oleic (44.11%), linoleic (33.19%), palmitic (13.42%) and stearic (6.85%) acids. The flour levels of essential amino acids, except lysine, were higher than that of the FAO/WHO reference protein for a five year old children. Trypsin inhibitor (24.37 TIA/mg protein), phytic acid (7.87 mg/ g flour), tannins (0.03 mg/g flour) and hemagglutinin (118 HU/g flour). *Jatropha* seed flours are rich in P (2041), K (1044.80), Mg (1033.58), Ca (514) and Na (101.76 mg/100gm flour).*

Key word: *Jatropha curcas*, physical properties, Composition, Fatty acids, Oil properties, Amino acids, Antinutritional factor, Minerals.
