

Seed Oil from a New Non-toxic *Jatropha* Species (*Jatropha curcas*): Chemical Composition, Physicochemical Characteristics, and Oxidation Stability

Abstract

In this study, non toxic (zero phorbol esters) *Jatropha curcas* seed from south region of Egypt was analyzed for its proximate composition. The seeds oil was extracted and analyzed for fatty acids composition, physical and chemical characteristics. The hexane-extracted oil content of *jatropha* seeds was found to be $26.73 \pm 0.34\%$. The values obtained for crude protein, ash, crude fiber, carbohydrate and moisture were 20.33 ± 0.08 , 5.31 ± 0.33 , 9.47 ± 0.22 , 31.83 and $6.33 \pm 0.18 \%$, respectively. Results of physical and chemical parameters of the investigated oil were as follows: iodine value, 112 (g I₂/100g oil); refractive index, (1.4682 ± 0.18); saponification value, ($194.32 \pm 0.4 \text{mg / g oil}$); unsaponifiable matter, ($2.40 \pm 0.17\%$); acidity (as oleic acid) 2.33 %; and peroxide value, ($3.20 \pm 0.18 \text{ meq O}_2 / \text{kg oil}$). The oil was found to contain high levels of oleic acid (44.8%) followed by linoleic, (33.55%) and palmitic acid (14.03 %), in addition to a little amount of stearic and myristic acids. This *Jatropha curcas* seed oil with the highest amount of polyunsaturated fatty acids (linoleic acid) and unsaponifiable matter may find an application in surface coating industries and bio-lubricant base oil and also can be used as an insecticidal agent.