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A study on the impact of availability of water over fruit quality in *Jatropha curcas* L.

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Bio-fuel has been regarded as potential alternative for the conventional fuels and a large scale research work is going on in this area. *Jatropha curcas* L. had been the choice of researchers as well as producers of bio-diesel replacing the energy crops due to its various benefits. However, inconsistencies in the growth and seed output were the main constraints faced by the cultivators. In this regard, a field work has been conducted for a period of three years (2009-2012) selecting seven field stations to study the impact of the availability of water over the physical growth of the plant and the dry seed output. Different watering schedules viz. drip irrigation, bore-well and rain-fed were adopted in these stations. In addition, impact of water over the fruit quality was also studied. The study revealed that regular availability of water favoured the growth of the plant and also the fruit quality. Out of the seven field stations, drip irrigated sites have shown more number of seeds/1000 fruits, where availability of water was regular and continuous. Results showed that the plant can survive without regular water supplementation, but the physical growth as well as seed output were influenced by the availability of water. It was proved that the regular and continuous availability of water resulted in the high yield. Details of the study were discussed in the full paper.

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Effect of storage conditions on *Moringa oleifera* Lam. seed oil: Biodiesel feedstock quality

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Moringa seed oil is known as Ben oil. Recently research by several authors illustrated the potential use of Ben oil for biodiesel production. Oil quality is directly related to the physiological condition of the seeds from which it is extracted. The aim of the study was to investigate the effect of various storage conditions and—duration on moringa seed oil quantity and quality as a potential source of biodiesel. Firstly, oil was extracted from fresh seeds and stored in dark bottles at room temperature. Secondly, seeds were stored following a factorial 2 × 4 × 3 experiment with two types of containers (paper and aluminium bags), four temperatures (−19, 4, 20 and 30°C) and three storage periods (6, 12 and 24 months). Results show that the oil content of moringa seed did not change significantly after 12 months of storage, but decreased significantly at 24 months. The free fatty acid increased significantly after 12 months at all storage conditions and continued to increase above the recommended value (2%) for biodiesel parent oil at 24 months, except for that of seed stored at −19°C in aluminium bags. The density of moringa seed oil remained unchanged throughout storage. The viscosity of oil extracted from seed stored in paper bags at −19°C and that of the stored oil decreased significantly at 24 months. Based on these results, moringa seed can be stored at any of the applied conditions for six months, but if they are stored beyond this period, the use of low temperature (≤ 4°C) and sealed containers are recommended. It is not advisable to store the extracted oil for more than 6 months.

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