

Supplementary material

Table S1. Study site conditions of the experimental plantation of ecotype E2M of Mexican non-toxic *Jatropha curcas*

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| Geographic location | Miacatlan, Morelos state, Mexico (latitude 18° 47' 43.3''N, longitude 99° 21' 04.0'' W at 1000 masl). |
| Climate of the site | Hot and humid with rainy season in summer, average temperature of 23.7°C and annual average rainfall of 1020.8 mm. |
| Origin of germplasm and propagation form | Native to the state of Morelos and obtained by generative propagation. |
| Physical-chemical properties of soil prior to the planting of the <i>Jatropha curcas</i> seedling | Medium level of organic matter and low levels of nutrients availability, with slightly alkaline clay soil texture (pH=7.6). |
| Measurement periodicity for plant analysis | Plantation was established in 2009, annual measurements were collected until 2018. |
| Number of plants | 64 |
| Maintenance procedure (Cultivation system) | Minimum irrigation and biofertilization resources, with low intensity of management: - Biofertilization was used only once during the seedling transplant process. -Auxiliary irrigation was used for only three months after the seedling transplant process. Subsequently, the only irrigation was natural rain -No insecticides or fungicides were used. -There was no control pruning. |
| Soil physical-chemical properties at the end of the analysis period | Increase in the content of organic matter and macronutrients, such as, N and P |

Source: Pérez et al. [1]

Table S2. Parameters, measurement periodicity, methodologies, and evaluation results of ecotype E2M of Mexican non-toxic *Jatropha curcas*

| Aspects analyzed | Periodicity of data measurement | Methodology | Results |
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| Concentration of phorbol ester in the oil | Oil from seeds harvested at 3 and 4 years old | (I) Oil analysis was carried out by High-performance Liquid Chromatography (HPLC) based on the modified method of Haas et al. [2] | - The ecotype E2M was identified as non-toxic due to the absence of phorbol ester. |
| Growth and survival of the plants | Collection of annual measurements recorded in July from 2009 to 2013 and finally, in 2018 when the plants were nine years old | (I) Monitoring of the plants' growth parameters: plant height, stem diameter, and plant coverage. (II) Statistical analysis, which consisted of (i) a comprehensive review of all field data, in order to avoid data-entry errors; (ii) plotting of histograms in order to determine whether data were normally distributed; (iii) analysis of outliers, for the purpose of identifying discordant outliers, and | - Plant height average: 200 ± 19.4 cm - Stem diameter average: 14.3 ± 2.3 cm - Plant coverage average: $39,072.9 \pm 10,521$ cm ² - 85% survival rate of plants in the last monitoring year. |

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| | | (iv) application of ANOVA and Tukey HSD significance tests to compare core trend parameters against the set of normal data. The tests for outliers and the significance tests were all applied at 95% confidence level—0.05 significance level. | |
| Production of seeds | Collection of ripe fruits per plant was conducted in August and September, in the years 2017 and 2018, when the plants were eight and nine years old | (I) Harvesting and drying of ripe fruits. (II) Separation of the pericarp and the seeds at a humidity of 14% y 8%, respectively. (III) Recorded weight of fruits and seeds collected per plant. (III) * | <ul style="list-style-type: none"> - Average production of ripe fruits: 0.81 ± 0.39 kg - Production potential of ripe fruits per hectare 1,021 kg (considering the cultivation density of 1,250 plants per hectare). - The weight of the seed with respect to weight of the fruit: 68.5%. - The weight of the pericarp with respect to weight of the fruit: 31.5%. - Production potential of seed per hectare: 700 kg. |
| Biomass production | | (I) Separation of tegument and endosperm. (II) Obtaining the percentage of composition of the pericarp, tegument, and endosperm with respect to the weight of the seeds. (III) * | <ul style="list-style-type: none"> - The weight of pericarp and tegument represent 31.5% and 41.5 % respectively. - The biomass production per hectare is 612 kg of residual biomass. |
| Oil content | | (I) Oil extraction by means of a mechanical cold pressing process, with 10 samples of 100 g of seeds. (II) Calculation of the percentage of oil extracted. (III) * | <ul style="list-style-type: none"> - Oil yield of 46.5% respect to the endosperm weight. - Oil yield per hectare: 191 kg. - Seed cake represents 53.5% of the endosperm weight. - Seed cake yield per hectare: 220 kg. |
| Oil characterization | Seeds harvested in 2018 were used when the plants were nine years old | (I) Physical properties analysis (i) density of the oil measured with Anton Para DMA 500 densimeter, (ii) Viscosity measured using a BROOKFIELD AMETEK MINIVIS II viscometer, (iii) Calorific value obtained by means of a 6400 Automatic Isoperibol Calorimeter manufactured by Parr Instruments Company. (II) Analysis of chemical properties through the composition of fatty acid | <ul style="list-style-type: none"> - Oil density: 0.918 gcm^{-3}. - Viscosity at 40 °C: 31.66 cSt. - Calorific value: 39.47 MJ kg^{-1}. - Proportion of unsaturated fatty acid: 80.3%, with most predominant acids being oleic acid and linoleic acids (40.1% and 39.3% respectively). |

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| | oil conducted by means of gas chromatography using the AOAC methodology (2005 963,22-969, 33). | - The composition of saturated fatty acids: 19.4%, with most predominant acids being palmitic acid and stearic acid (11.2% and 7.4% respectively). |
| Endosperm characterization | (I) Bromatological analysis to determine the content of proteins, crude fiber, available carbohydrates, total reducing sugars, ash, and energy content, using the methodology of national standards NMX-NORMEX and NOM SCFI, under the specific AOAC regulations for cereal-seeds-oleaginous. | <ul style="list-style-type: none"> - Crude protein content: 26 %. - Percentage of total fats: 63.3%. - Crude fiber content: 4%. - Content of dietary fiber: 36.2%. - Gross energy content: 28.7 MJ kg⁻¹. |

* The statistical analysis applies for seed production, biomass production, and oil content.
Source: Pérez et al. [1]

References

1. Pérez, G.; Islas, J.; Guevara, M.; Suárez, R. The Sustainable Cultivation of Mexican Nontoxic *Jatropha Curcas* to Produce Biodiesel and Food in Marginal Rural Lands. *Sustain.* **2019**, *11* (20). <https://doi.org/10.3390/su11205823>.
2. Haas, W.; Sterk, H.; Mittelbach, M. Novel 12-Deoxy-16-Hydroxyphorbol Diesters Isolated from the Seed Oil of *Jatropha Curcas*. *J. Nat. Prod.* **2002**, *65* (10), 1434–1440. <https://doi.org/10.1021/np020060d>.