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Lingua di pubblicazione	Inglese
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Nota di contenuto	Part I Selective Breeding and Genetic Diversity -- Genetic Improvement of Edible and Non-Edible Jatropha for Marginal Environments in Sub-Saharan Africa -- Genetic Resources and Advances in the Development of New Varieties of Jatropha curcas L. in México -- Strategies in the Genetic Breeding of Jatropha curcas for Biofuel Production in Brazil -- Prebreeding and Genetic Enhancement in Jatropha through Interspecific Hybridization -- Genetic Transformation and Transgenics of Jatropha curcas, a Biofuel Plant -- Fatty Acid Biosynthesis and Triacylglycerol Accumulation in the Biofuel Plant Jatropha curcas -- Genetic Engineering for the Improvement of Oil Content and Associated Traits in Jatropha curcas L. -- Transcriptomic View of Jatropha curcas L.

Inflorescence -- Application of Molecular Markers in Genetic Improvement of *Jatropha* -- Genomic Resources and Marker-Assisted Selection in *Jatropha curcas*. Part II Metabolism -- Proteomics Studies in *Jatropha curcas* Seeds -- Pervasive System Biology for Active Compound Valorization in *Jatropha* -- Part III Physiology and Plant Production -- Agronomy of *Jatropha curcas* in Mexico -- Phenology and Photosynthetic Physiology of *Jatropha curcas* L. Grown Under Elevated Atmospheric Carbon Dioxide in a Semi-Arid Environment -- Can One Use Chlorophyll A Fluorescence as a Physiological Marker of *Jatropha curcas* L.? -- *Jatropha*: from Seed to Plant, Seed, Oil and Beyond -- Part IV Feeding Use -- Influence of the Acid Soils of Tabasco Mexico in the Physico-chemical Composition of Xuta or Edible Mexican Pinion (*Jatropha curcas* L.) -- Applications of *Jatropha curcas* Cake -- Part V Coproducts -- Conversion of Glycerine into 1,2-Propanediol for Industrial Applications -- *Jatropha* - Phytochemistry, Pharmacology and Toxicology -- *Jatropha curcas* L. Latex Production, Characterization and Biotechnological Applications -- Part VI Processing -- Biodiesel: A Survey on Production Methods and Catalysts -- The Characterization and Technologies for the Use of *Jatropha curcas* L. By-products as Energy Sources. Part VII Socio-economic Sustainability -- Economic feasibility and sustainability of *Jatropha* as a crop -- Experience with Farming Models, Socio-Economic Issues and Agronomic Performance of *Jatropha curcas* L. in Sub-Saharan Africa.

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#### Sommario/riassunto

*Jatropha curcas*, or physic nut, is a small tree that, in tropical climates, produces fruits with seeds containing ~38% oil. The physic nut has the potential to be highly productive and is amenable to subculture in vitro and to genetic modification. It also displays remarkable diversity and is relatively easy to cross hybridize within the genus. Thanks to these promising features, *J. curcas* is emerging as a promising oil crop and is gaining commercial interest among the biofuel research communities. However, as a crop, physic nut has been an economic flop since 2012, because the species was not fully domesticated and the average productivity was less than 2 t/ha, which is below the threshold of profitability. Nevertheless, hybrids with a productivity of >7 t/ha could be reached and it is contributing to new markets in some countries. As such, it is important for research to focus on the physiology and selective breeding of *Jatropha*. This book provides a positive global update on *Jatropha*, a crop that has suffered despite its promising agronomic and economic potential. The editors have used their collective expertise in agronomy, botany, selective breeding, biotechnology, genomics and bioinformatics to seek out high-quality contributions that address the bottleneck features in order to improve the economic trajectory of physic nut breeding.

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