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“Filling gaps and removing traps
for sustainable resource management”

Potential New Oil Crops for Edible and Non-Edible Purposes in Brazil

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Abstract

In the current scenario of increasing demand for vegetable oils and fats, the diversification of oil-bearing species for commercial planting is a wise and necessary strategy. This action makes possible: (i) the reduction of the world's dependency on the prevailing traditional oil crops; (ii) the sustainable development of new markets for non-food products, without affecting the food security of the global population, and (iii) the selection of oil crops adapted to the region of choice, reducing costs and environmental risks. The native Brazilian flora holds great biodiversity, with numerous oleaginous species. We present four marginal species, for their great potential for agricultural exploitation, rusticity, productivity and food and industrial aspects of their oils. *Acrocomia* sp. and *Syagrus coronata* are two palm species; the first one, with a broad geographic distribution, occupies mainly savannah and forest areas of the Southeast and Midwest of Brazil, while the latter populates especially the semi-arid regions of Southeast and Northeast Brazil. The fruits of *Acrocomia* sp. produce two types of oils: the pulp oil, rich in oleic acid and that of the kernel, rich in lauric acid. Estimates show that this palm can produce $>5.0 \text{ t ha}^{-1}$ of oil intended for food or non-food industry. The kernel of *S. coronata* contains oil composed of medium chain saturated fatty acids, and is suitable for human consumption because of its nutritional and organoleptic qualities. *Mabea fistulifera* is conspicuous in the Brazilian territory, colonizing degraded areas of Atlantic Forest, Cerrado and transition regions. The oil extracted from its seed, rich in polyunsaturated fatty acids, has applicability in the oil-chemical industry for the synthesis of polyols and polyurethanes. In the same way, the *Licania rigida* seed is an oil source for the paint, sealant and drying-oil industry, containing 70% of lycanic acid. The oils of the four species can still be used in the pharmaceutical and renewable energy industries. Domestication is the first challenge for a sustainable and economically viable exploitation of these species, and the current *Acrocomia* sp. breeding programme can be used as a base model.

Keywords: Biodiversity, domestication, minor crops, potentials