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Identification of Botanical Species of Oil Crops in the Region of West Pará, Brazil as Sources for Biodiesel Production

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Abstract

The region of western Pará State in Brazil shelter a large number of neglected oil crops, many of them used locally as food additives or for medical purposes. Thus, these oils are of little economic importance. Therefore one objective of this and other research works is the evaluation of oil crops as energetic resource for biodiesel production. This research being part of the Brazilian government research programme for alternative renewable energy resources for biodiesel production. The following research is done primarily by field research in the middle Amazon Region at geographical locations near the intersection and along the Amazon and Tapajós Rivers. As main oil crops are targeted *Arecaceae* (*Palmae*) and *Lecythidaceae* species, amongst other cultures well known locally for their edible oil in the seeds and fruit pulp. Local area surveys yielded preliminary results identifying some species with high potential for vegetable oil production: Pajurá (*Pouteria speciosa* (Ducke) Baehni), Tucumã (*Astrocaryum aculeatum* G. Mey.), Andiroba (*Carapa guianensis* Aubl.), Umari or Mari (*Poraqueiba sericea* Tul.), Patauá (*Oenocarpus bataua* Mart.), Bacaba (*Oenocarpus bataua*), Piquia (*Caryocar villosum* (Aubl.) Pers.), Inajá (unknown species), Brazil-nut (*Bertolletia excelsa* Humb. & Bonpl.), Sapucaia (*Lecythis usitata* Miers), Babaçu-palm (*Attalea speciosa* Mart. ex Spreng.). These cultures show high oil contents in seed and/or pulp of up to 25,6% in Piquia, up to 47,2% in Tucuma, up to 12,8% in Patauá, around 60% in the nut of *B. excelsa*, around 45% oil in the nut and 3,7% of essential oil in the peduncle of the Sapucaia, and around 22,2% in the Babaçu seeds. The preliminary results showed a high potential for oil crops in the central Amazon Region to supply the production chain of biodiesel with enough raw material in form of raw vegetable oil for the trans-etherification processes. Since most of the oil of some crop is found in the fruit pulp, it is, further, pretended to develop new extraction methods in order to get satisfactory results in the oil extraction.

Keywords: Biodiesel, extraction methods, lower Amazon, oil crops, Santarém, Tapajós River