MACAUBA (ACROCOMIA ACULEATA) PALM TREE: INDUSTRIAL EXTRACTION PROCESS OF OILS

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Nowadays, the interest of study of vegetable oil raw materials with high potential and raised productivity has been increased. The Macauba (Acrocomia aculeata) is a typical palm tree from several regions of Brazil, which produces a fruit containing a vegetal oil source. The potential of oil productivity reaches 6,000 kilograms of oil for hectare, including the extraction of two differentiated oils: unsaturated pulp and saturated kernel oils. The extraction of these oils have been carried out in an extractive or low technological ways, comparing to optimized industrial processes. The goal of this work is to propose an industrial process of oil extraction from Macauba fruit with food purposes. The goal is to get a viable and sustainable industrial plant. The information to establish and to describe the required steps in the oil extraction process was obtained from literature and by consulting of equipment suppliers. The results were: the mass and energy balances and, the process flowsheet. The model used in this work shows that 180.30 kg/h of pulp oil and 23.29 of kernel oil are obtained by processing 1,000 kg/h of fresh fruit. In the pulp cake (268.80 kg/h) are retained 15% oil and the kernel cake (32.10 kg/h) contains 15% residual oil. The mass dry endocarp generated is capable of providing 100% of thermal energy required for processing and the remaining quantity can be marketed. It was evidenced the need the next studies will be to reduce this waste of resources, mainly by increasing the efficiency of pressing, filtration and decanting.