SIAN
Simpósio de Alimentos e Nutrição

FLEXIBLE FILMS BASED ON BABASSU MESOCARP FLOUR AND BABASSU CAKE: POTENTIAL USE AS ANTI-UV FOOD PACKAGING

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The aim of this study was to develop flexible, biodegradable films made from babassu (*Attalea speciosa*) mesocarp flour (BM) with babassu cake (BC), which is the residue from oil extraction. BM was used as a polymeric matrix to obtain the filmogenic solutions: 4 g of BM was dissolved in 96 g of BC (native pH ~6 and pH 12), followed by hydrothermal treatment in an autoclave at 121°C/30 min. Then, glycerol was added as a plasticizer (30 g/100 g BM) and the solution was placed in a water bath (90ºC/12 min). Two additional film solutions were prepared using the BC as a replacement for water at its native pH and adjusted to pH 12 to check the effect of the BC. The films were prepared by casting in an air-circulated oven (35ºC/20h). The native BC film showed lower tensile strength [1.672 MPa] and elongation [9.556%] than the control film with native BM [1.950 MPa and 15.430%].The

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BM film at pH 12 decreased the strength compared to the control but exponentially increased the elongation [0.594 MPa and 47.180%], while the BC film at pH 12 had the highest strength among all treatments and the second highest elongation [2.195 MPa and 26.336%]. At all wavelengths (20-800 nm), the BC film at pH 12 transmitted less light. At the initial UV wavelengths and the final visible light wavelengths, the native BC film exhibited similar light transmittance to the BC film at pH 12, but in the range of 300-700 nm, the BM film at pH 12 exhibited the second lowest transmittance value. It can be concluded that BC films and BM films at pH 12 can potentially be used as UV-protected food packaging. BC addition and alkaline treatment presented a positive influence on the film's mechanical properties and light transmission.

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