



ABSTRACT

Mango and banana starches were isolated from unripe fruits and their morphology; thermal and pasting properties; molar mass and chain length distribution were determined. Mango starch granules were spherical or dome-shaped and split, while banana starch had elongated granules with a lenticular shape. Amylopectin of both fruit starches had a lower molar mass than maize starch amylopectin; however, mango amylopectin had the highest gyration radius. Banana amylopectin showed the lowest percentage of short chains [degree of polymerization (DP) 6–12] and the highest level of long chains (DP \geq 37); mango amylopectin presented the highest fraction of short chains, but the level of longest chains was intermediate between those of banana and maize amylopectins. Banana starch presented the highest average gelatinization temperature followed by mango starch and maize starch had the lowest value; a similar pattern was found for the gelatinization enthalpy. The two fruit starches had a lower pasting temperature than maize starch, but the former samples showed higher peak and final viscosities than maize starch. Structural differences identified in the fruit starches explain their physicochemical characteristics such as thermal and pasting behavior.

<http://onlinelibrary.wiley.com/doi/10.1002/star.200800103/abstract>

CEPROBI - IPN

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Revista: Starch - Stärke. Volume 61, Issue 5, pages 291 – 299.