Abstract

Twenty three varieties of Musa sp. belonging to different genetic groups (dessert bananas, cooking bananas, hybrids of FHIA) and consumed in Colombia were described. Physical and morphological characteristics of bananas or peeled bananas (bunch, raquis, hands, fingers weights; number of hands and number of fingers per hand, specific gravity of hands and fingers, lengths and girths of fingers, peel percentage, yield of edible food); physicochemical characteristics of pulp (dry matter, mineral content: potassium, calcium, magnesium) and starch (gelatinization temperature, amylose content) as well as functional properties of flours (RVA viscoamylogram) were investigated.

Cooking bananas have wider size and diameter than dessert bananas. Colombian plantains used in the industry have a peel percentage in the 35-39% of the fruit fresh weight. Peel percentage observed among clones was between 24 to 47%.

Some significant differences (P ≤ 0.01) among dry matters were shown between genetic groups of green fruits: FHIA dessert hybrids (24.6%) < dessert bananas (29.4%) < non-plantain cooking bananas (32.0%) < FHIA cooking hybrids (34.2%) < plantains (41.1%). The specific gravity parameters measured on hands, fruits or peeled fruits were not relevant to precisely estimate the dry weight of fruits.

Mineral content (per 100 g/dry matter) analyses of all varieties revealed large variation, such as 814 and 1550 mg of potassium; 5 and 32 mg of calcium; 85 and 141 mg of magnesium. Plantain group had significantly lower calcium and Magnesium content than the other genetic groups, with 8.4 and 90.7 mg/100g dry matter respectively. Onset temperature of starch varied from 59.7 to 67.8°C and permitted to significantly differentiate (P ≤ 0.01) dessert bananas (63.2°C) < non-plantain cooking bananas (65.7°C) < FHIA hybrids (66.6°C) < plantains (67.1°C). The amylose amounts of starches varied from 15.4% to 24.9%. Amylose percentage permitted to significantly differentiate cooking bananas <19% from the cooking bananas >21% (P ≤ 0.01). Rheological properties showed that the pasting temperature was relevant to differentiate dessert banana flour (69.5°C) < FHIA dessert hybrids and non-plantain cooking bananas (72.8°C) < cooking hybrids and plantains (75.8°C). The cooking ability criterion also helped to differentiate dessert banana + FHIA hybrids (236s) from cooking bananas (183s) at P ≤ 0.01.

This investigation permits a better understanding of behind the adoption of the varieties by producers and the preferences of the consumers according to the consumption mode, using morphological, physicochemical and rheological criteria obtained from the pulps and the flours of the studied Musaceae.