

Effect of Induced Ripening Agents on Physicochemical Properties of Ambul Banana (*Musa acuminata*, AAB)

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This study is to evaluate effects on induced ripening agents on physicochemical parameters of banana. Freshly harvested green mature banana (*Musa acuminata*, AAB) hands, which were in same maturity stage, were subjected to 1000 ppm ethephon, 1000 ppm acetylene, 20% Ethylene Glycol, Wood smoke and natural ethylene emits from ripened fruits. Physicochemical properties were measured in each treated sample in every 48 hours until the fruits get overripe. Ethephon showed significantly different ($p < 0.05$) L^* and a^* values in fully yellow stage from others at the same stage. Firmness of the peel and flesh was reduced during ripening where the lowest flesh firmness (31.25 g) was obtained for acetylene and wood smoke treated samples. Hardness of the peel reduced from 1541.45 ± 135 g to $221-334$ g during ripening. Acetylene treated fruits showed the highest moisture percentage in flesh and the lowest in peel at overripe stage comparing to others. Titratable acidity showed increasing pattern through ripening and pH showed decreasing pattern. The highest titratable acidity was recorded in ethephon treated samples while the lowest was recorded in naturally ripened samples at fully yellow stage. pH which was 5.3 ± 0.2 in raw sample was decreased up to 4.2 ± 0.1 in carbide treated samples at fully yellow stage when that in the control sample was 5.1 ± 0.1 . Pulp Total Soluble Solids (TSS) was increased from 0.6 to 5.2-5.5 during ripening and rate of TSS increment was highest in ethephon treated samples. Maximum pulp to peel ratio was obtained in carbide treated fruits while that was lowest in ethephon treated samples. Total sugar content was increased from 0.3 ± 0.04 g/100g of fresh weight to 19.91 ± 0.07 g/100g in natural ripening while it was 10.2-10.6 g/100g in treated samples in fully yellow stage. Starch content showed decreasing trend throughout ripening process where it was reduced from 16.64 ± 1.15 g/100g to 1.22-1.39 g/100g in fully yellow stage.

Keywords: Artificial ripening agents, banana, physicochemical changes