Aroma Volatiles of Ambul Banana (*Musa acuminata*, AAB) as Affected by Artificial Ripening Agents

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The characteristic aroma is a crucial quality parameter in banana fruit. This study is to evaluate aroma profile of artificially ripened banana compared to naturally ripened banana. Freshly harvested green mature banana (*Musa acuminata*, AAB) in same maturity stage were treated with 1000 ppm ethephon, 1000 ppm acetylene, natural ethylene emits from fruits and wood smoke, stored at 25□C and 80% RH until fruits get fully ripened. Aroma profile was analyzed in 48 hour intervals using Headspace- Solid Phase Micro-extraction (HS-SPME) as sampling method and gas chromatography with mass spectrophotometer for the analysis of compounds. Aroma compounds were adsorbed using SPME fiber (Carboxen-polydimethylsiloxane-divinlybenzene, 50 mm) by exposing the fiber to headspace of the sample at 60□C for 10 min. The number of aroma compounds detected was 28 in naturally ripened fruits at fully yellow stage (stage 6) including esters, carbonyl compounds, alcohols and volatile phenols, while it was 21, 19, 17 and 17 in the samples treated with natural ethylene emits from fruits, smoke, acetylene and ethephon, respectively. Ethyl acetate, isobutyl hexanoate, butyl butanoate, [(E)-Hex4-enyl] butanoate, Isopentyl hexanoate, [(E)-Hex-4-enyl] hexanoate,1-Ethylcyclohexene, Z-4-Dodecenol were detected only in naturally ripened samples at stage 6. Butanoic acid, ethyl ester; 3-methylbutyl acetate; butanoic acid, 3-methylbutyl ester and butanoic acid, propyl ester was found as most abundant esters at stage 6 in naturally ripened samples. However, butanoic acid and propyl ester were absent in ethephon and carbide treated samples. 3-methylbutyl acetate which is the major compound responsible for banana like odour was detected in all samples at stage 6. Number of esters was highest in naturally ripened samples (19) while it was lowest in acetylene treated fruits (12). Poor aroma profile of artificially ripened fruits may lead to low sensory properties.

Keywords: Solid phase micro-extraction, Induced ripening agents, Odour active compounds, Banana aroma