

Impregnation of ethylene scrubbers in paper made from banana fibre delays ripening of ‘Ambul’ banana

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The effect of biodegradable ethylene scrubbers on extending storage life by reducing ripening of ‘Ambul’ banana (*Musa acuminata*, ‘Mysore’ subgroup, AAB group) was investigated. Among many techniques to remove ethylene and delay banana ripening during freight and storage, few are economical and eco-friendly. This preliminary study examined the possibility of impregnating determined concentrations of ethylene scrubber substances, i.e. activated charcoal (AC), potassium permanganate (PPM) and titanium dioxide (TD), into paper board made of banana fibre, a natural resource underutilized in Sri Lanka. All paper types, pure and impregnated, showed varying degrees of ethylene absorption over the 21 days of gas analysis in the *in-vitro* study, among which, the best absorption was by the PPM paper (95% of initial ethylene reduced by day 21). Quality analysis, for banana fruits of the *in-vivo* study was conducted on days 4, 7 and 10 of ambient and cold storage at 13.5°C and 80% RH. Bananas stored with AC paper showed delayed ripening until day 4, followed by accelerated ripening. Sensory analysis for the fruits stored with AC paper under cold room conditions revealed that consumer preference for their flesh colour, taste and overall acceptability was significantly higher (at $\alpha=0.05$) than that for the control bananas. In the sensory analysis for banana fruits stored with TD paper under ambient conditions, a significant preference (at $\alpha=0.05$) was observed only for the peel colour. The quality analysis of the banana stored at ambient temperature with TD paper showed no significant difference to that of the control banana (except for skin colour on day 7). Further studies are needed to be carried out to get a feasible conclusion.

Key words: Banana, delay, ethylene scrubbers, ripening fibre

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