

DEVELOPMENT OF AN ORGANIC RIPENING AGENT BY KEPPETIYA AND BILIN

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Use of industrial grade artificial ripening agents is highly debatable throughout the world as they may pose negative health impact on consumers. Hence, a study was conducted to develop an organic ripening agent using two biomaterials namely *keppetiya* (*Croton lacciferus* L.) and *bilin* (*Averrhoa bilimbi* L.) and its effect was evaluated on inducing ripening of *Embul* banana. Emanations of fresh leaves, withered leaves and powder samples of *keppetiya* and *bilin* were analyzed by gas chromatography (GC). After that, banana variety *Embul* harvested at mature green stage {Total Soluble Solids (TSS)= $5.6 \pm 0.2\%$ and Titratable Acidity (TA)= $0.55 \pm 0.03\%$ } were exposed to *keppetiya* and *bilin* powder samples namely *keppetiya* 5, 10, and 15%, *bilin* 5, 10 and 15% and *keppetiya: bilin* (1:1) 5, 10 and 15% (w/w) for 24 h in corrugated fiberboard boxes under ambient conditions. Data on pulp firmness, peel color, TSS, TA, pH and physiological weight loss were measured at day 0 (initial) and thereafter at 2 day intervals until the fingers showed brown spots on the peel. Sensory evaluation was conducted by 5 point hedonic scale at table ripe stage. According to results of the GC, ethylene concentrations of fresh, withered and powder forms of *keppetiya* leaves were 973.413, 48.241 and 15.276 ppm respectively while in *bilin*, these values were 0.802, 1.054 and 9.601 ppm respectively. Visible indices of ripening were first showed by banana exposed to *keppetiya: bilin* (1:1) 15% (w/w) on day two whereas the control sample exhibited these indices on day four. In conclusion, banana exposed to *keppetiya: bilin* (1:1) 15% (w/w) was selected as the best treatment and it had a TSS, TA and firmness of $24.3 \pm 2.0\%$, $1.98 \pm 0.1\%$ and $7.64 \pm 2.6\text{N}$ respectively while the control samples had TSS, TA and firmness of $18.5 \pm 2.0\%$, $1.65 \pm 0.1\%$ and $10.58 \pm 2.6\text{N}$ respectively.

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