EFFECT OF FRECKLE DISEASE ON RIPENING RATE OF DIFFERENT CULTIVARS OF BANANA

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ABSTRACT

EFFECT OF FRECKLE DISEASDE ON RIPENING RATE OF DIFFERENT CULTIVARS OF BANANA

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Ripening is a biological process, which occurs in fruits after maturation. Banana is a climacteric fruit showing a burst ethylene production followed by a pronounced increase in respiration.

Freckle disease is observed in leaves and fruits of bananas, plantains and abaca. The causal organism is a fungus, *Phyllosticta musarum* (Cooke) and the perfect stage is *Guignardia musae.* Symptoms of the disease appear on the pericarp of the fruits as minute superficial spots which do not enlarge into lesions with fruit ripening. Freckle infected banana restrict the development of anthracnose by induced resistance. In addition it is believed that freckle disease delays ripening of banana and freckle infected fruits are tastier.

The objective of this study was to investigate the effect of freckle disease on ripening rate of different cultivars of banana. The cultivars selected were 'Embul' (AAB), 'Kolikuttu' (AAB), 'Seeni kesel' (ABB), 'Puwalu' (AAB) and 'Anamalu' (AAA) which are some common local cultivars.

Freshly harvested green mature freckled and non-freckled bananas of one hand or adjacent hands of the same bunch were analyzed daily for production of ethylene , carbon dioxide, peel color development, firmness, total soluble solid content, % titratable acidity,

sugar: acid ratio and pH value from the mature green stage to an over ripe stage in order to compare their ripening rates.

Non-freckled bananas showed a faster development of peel color in all cultivars when compared to freckled bananas indicating a delay in ripening in freckle-infected bananas. Non-freckled banana showed an increase in rates of ethylene production at the ethylene climacteric, compared to freckled banana in all cultivars. However, this increase was significant only in cultivars 'Embul' and 'Kolikuttu'. Carbon-dioxide production was higher in freckled fruits of cultivars 'Embul' and 'Kolikuttu', and carbon-dioxide production was higher in non-freckled fruits of the other cultivars. None of these values were significant. There were no significant difference in freckle and non-freckled banana pulp samples at table ripe stage in total soluble solids, % titratable acidity and pH in any of the cultivars analyzed.

Considering all the banana cultivars experimented slower peel color development and higher values of firmness of freckled bananas is associated with a delay in ripening. Ethylene production is intimately tied to fruit ripening and the lower production of ethylene by freckled fruits also indicates a delay in ripening. A significant lower production of carbon-dioxide was not observed in freckled fruits probably as respiration of *P. musarum* contributes to the CO_2 produced. As there was no significant difference in any of the chemical parameters tested it could not be concluded that freckle gives rise to a better taste in banana.