

The Effect of Pre -Harvest Application of Potassium on Fruit Quality of “TEJC” Mango (*Mangifera indica* L.) Selected for Processing

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‘TEJC’ is a vegetatively propagated, heavy bearing Sri Lankan mango (*Mangifera indica* L.) cultivar, currently cultivated in a few areas including Galkiriyagama and Dambulla areas. Having a high demand, especially for the export markets, there is a need to increase post-harvest quality of fruits, with regard to external appearance, colour and internal eating quality, targeting higher quality of processed products such as ready to serve drinks and dehydrated slices of the fruit. Therefore, the objective of this research was to evaluate the effect of pre-harvest application of potassium sulphate spray on the postharvest qualities of fruits relevant to selected processed products of ‘TomEJC’ mango. Concentrations of 2%, 4% and 6% w/v of potassium sulphate spray applications on fruits were applied while on the tree and postharvest quality of mango at table ripen stage were evaluated two months after the treatment.

The relevant physical properties; peel and flesh colour, the colour of ready to serve drinks and dehydrated products were measured using a Minolta colourimeter (L*a*b* colour space). Hue angle (H*) and Chroma (C*) were calculated using the above colour data. Further, fruit circumference, length, weight loss, peel percentage, flesh percentage, peel thickness, total soluble solids, titrable acidity and pH were also measured to assess the quality of the fruit required for processing. Severity of the anthracnose development was studied on daily basis after harvesting. A completely randomised design was used as the experimental design and the results were analysed using SAS 9.1 software. Analysis of the data exhibited that L* was significantly ($p < 0.05$) increased in both flesh and peel with increasing potassium sulphate concentration and a* of flesh and dehydrated mango was significantly higher in fruits treated with 2% w/v potassium sulphate. Peel thickness and titrable acidity significantly increased ($p < 0.05$) while the pH decreased significantly with increasing concentration of potassium sulphate. Anthracnose disease severity decreased significantly up to ripen stage with increasing potassium sulfate concentration within the limit of use. These results provide evidence that pre-harvest potassium sulphate spray application onto fruits can be used to improve postharvest quality of ‘TEJC’ mango which then provides better quality in processed products. However, the economic feasibility of application needs to be investigated before making recommendations as potassium is a relatively expensive nutrient.