

Minimizing of delayed bitterness of lime juice

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Lime (*Citrus aurantifolia*) is widely used as a flavor enhancer in Sri Lanka. As extracted lime juice cannot be preserved for long time due to the development of delayed bitterness, industry has introduced artificial alternatives for lime. The aim of this research was to evaluate effect of sedimentation and filtration on bitterness of natural lime juice. Extractions were kept in PET bottles for one month at ambient conditions to facilitate sedimentation and the development of bitterness and then the juices were filtered through activated carbon columns with and without removing the sediments. Columns of three heights (5 cm, 10 cm and 15 cm) were used. Filtered juices were analyzed for physiochemical (pH, titrable acidity (TA) and total soluble solid (TSS), antioxidant (total phenolic content (TPC), antioxidant scavenging activity (DPPH), sensory quality (simple ranking test, 5 point hedonic scale) and for microbiological properties. Based on these results, the juice obtained after de-sedimentation and filtered through 10 cm activated carbon column was selected for further studies. The pH, TSS, and TA values for selected juice were 2.2, 4.8°, 5g citric acid equivalent /100mL respectively, and those values were significantly different compared to the natural lime juice (pH 2.01, TSS 7° and TA 6.29g citric acid equivalent /100mL). Total phenolic content of selected lime juice was 0.029 mg gallic acid equivalent/g, which is significantly lower than natural lime juice (0.611mg gallic acid equivalent/g). Sensory results revealed that the sour taste and the overall acceptability of the filtered lime juice were similar to that of natural lime juice. On the other hand, natural lime juice showed higher “bitterness” compared to filtered juice. Results revealed that the layer separation and filtration through activated carbon is an effective treatment to reduce the development of delayed bitterness, though the phenol content was reduced significantly than the natural lime juice.

Key words: delayed bitterness, limonin, sedimentation, activated carbon, phenolic compounds

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