

Extraction and Quality Evaluation of pectin from some fruit wastes in Sri Lanka

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The present study was to evaluate selected fruit wastes as a source of pectin. Pectin was isolated from fruit wastes (peel of mango, lime, passion fruit, jackfruit, sidaran, papaya, banana and pineapple, press cake of wood apple and golden apple and cashew fruit) and yield was evaluated. Based on high pectin yield, jackfruit (*Artocarpus heterophyllus*) and sidaran (*Citrus aurantium*) were selected for further analysis. The effect of different maturity stages of jackfruit and sidaran on pectin yield was studied. Chemical and physical properties and sensory analysis were done for pectin(s) obtained from jackfruit rind and, sidaran peel and the values were compared with that of commercially available pectin.

Sidaran peel had the highest pectin yield ($3.00 \pm 0.06\%$) while golden apple press cake had the lowest ($0.03 \pm 0.01\%$). Matured Stage of sidaran peel ($3.00 \pm 0.06\%$) and jackfruit rind ($1.65 \pm 0.10\%$) had highest pectin yield. Chemical properties including moisture (%), ash (%), pH, methoxyl content(%), equivalent weight, acetyl value(%), anhydrouronic acid (AUA) (%) and degree of esterification (DE) (%) of jackfruit and sidaran pectin were 10.15 ± 0.80 , 0.86 ± 0.12 , 2.80 ± 0.03 , 8.58 ± 0.04 , 746.61 ± 19.59 , 1.59 ± 0.04 , 62.69 ± 0.29 , 77.67 ± 0.67 and 10.47 ± 0.22 , 0.86 ± 0.11 , 2.68 ± 0.00 , 6.26 ± 0.06 , 607.31 ± 4.24 , 1.94 ± 0.04 , 50.33 ± 0.52 , 70.63 ± 0.20 respectively. Physical properties including gel strength (%), gel color, setting time (s), setting temperature ($^{\circ}\text{C}$) and gel grade of jackfruit and sidaran pectin were 15.63 ± 0.23 , light brownish, 125.67 ± 7.77 , 67.33 ± 2.08 , 110 and 26.27 ± 0.44 , light greenish yellow, 184.33 ± 2.08 , 51.33 ± 1.53 , 90 respectively. There was no significant difference in texture, taste and overall acceptability of pectins extracted from jackfruit, & sidaran when compared with commercial pectin in jam ($p < 0.05$). Owing to these results, jackfruit rind and sidaran peel were rich source of pectin and jackfruit pectin can be classified as high methoxyl rapid set pectin and sidaran pectin can be classified as low methoxyl pectin.

Keywords: Fruit waste, jack fruit (*Artocarpus heterophyllus*), sidaran (*Citrus aurantium*), analysis, pectin

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