

EXTRACTION AND CHARACTERIZATION OF PECTIN FROM SELECTED FRUIT WASTES

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Pectin is an important dietary fiber and is widely used as a gelling agent, thickening agent, stabilizer, and emulsifier in the food industry. The inedible portions like peels and cores of commercially available fruits of *nasnaran* (*Citrus madurensis* L.), starfruit (*Averrhoa carambola* L.), soursop (*Annona muricata* L.), avocado (*Persea americana*), and *nelli* (*Phyllanthus emblica* L.) are disposed as waste. This study thus investigated the potential of extracting pectin from above fruit wastes to minimize the cost of commercial pectin production. Pectin was extracted by acid extraction using 0.5 N, HCl. *Nasnaran*, soursop and starfruit yielded pectin but there was no significant yield from *nelli* and avocado. Physicochemical characteristics (moisture, ash, solubility, colour), equivalent weight, methoxyl content, anhydrouronic acid content (AUA), degree of esterification (DE) was analysed using ANOVA in SAS programme with 95% confidence level. Moisture and ash content of all treatments were in accepted level but lowest ($p < 0.05$) ash ($5.85 \pm 0.29\%$) and moisture ($9.49 \pm 0.15\%$) contents were obtained from *nasnaran* pectin (accepted maximum levels are 10% and 12%, respectively). Pectin extracted from starfruit showed the highest equivalent weight (653.22 ± 17.02) and the lowest methoxyl content ($3.51 \pm 0.36\%$) indicating better gelling ability (acceptable methoxyl content < 7). *Nasnaran* resulted in the highest ($91.92 \pm 9.63\%$) AUA of pectin with highest purity (AUA $> 65\%$) and others not. DE of all fruits ranged from 42.42 ± 2.11 to 48.36 ± 3.63 . Thus, all pectins were rated as low methoxyl pectin (DE $< 50\%$). *Nasnaran* pectin indicated the highest solubility in both cold and hot water while soursop pectin had the lowest solubility. The yield of pectin and physicochemical characteristics highlighted that the *nasnaran* pectin had a high possibility to extract good quality pectin but starfruit pectin had the better gel-forming ability.

Keywords: Acid extraction of pectin, Degree of esterification, Fruit wastes, Physicochemical characteristics