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## Optimization of pectin extraction from pistachio green hull as a new source

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### Highlights:

- Maximum extraction yield of pectin was  $22.1 \pm 0.5\%$  at optimal conditions.
- Optimum extraction conditions were at  $90^\circ\text{C}$  for 30 min with LSR 50 and pH 0.5.
- Pistachio green hull pectin is classified as low methoxyl pectin.
- Galacturonic acid content of pectin under optimal condition was about 65%.
- Molecular weight of pectin under optimal condition was about 12.875 KDa.
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### Abstract

In this paper, the influence of pH (0.5-2.5), temperature ( $50-90^\circ\text{C}$ ), extraction time (30-150 min) and liquid/solid ratio (10-50 v/w) on the acidic extraction yield and degree of esterification (DE) of pistachio green hull pectin were studied by using central composite design. The results indicated that the yield and DE of pectin ranged from 7.31 to 19.02% and 26.00 to 53.01%, respectively. The optimization of pectin extraction condition showed that the optimal condition was pH of 0.5, temperature of  $90^\circ\text{C}$ , time of 30 min and liquid/solid ratio of 50 v/w. In this condition, the experimental yield ( $22.1 \pm 0.5\%$ ) was fine accord among predicted yield (23.42%). Also, under the optimal extraction condition, the galacturonic acid content of pectin was about 65%. The FTIR spectrum showed that the pectin extracted under optimal condition is rich from polygalacturonic acid.

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