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Correlation of FT-IR fingerprint and α-glucosidase inhibitory activity of salak (salacca zalacca) fruit extracts utilizing orthogonal partial least square

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Abstract
Salak fruit (Salacca zalacca), commonly known as snake fruit, is used indigenously as food and for medicinal applications in Southeast Asia. This study was conducted to evaluate the-glucosidase inhibitory activity of salak fruit extracts in correlation to its Fourier transform infrared spectroscopy (FT-IR) fingerprint, utilizing orthogonal partial least square. This calibration model was applied to develop a rapid analytical method tool for quality control of this fruit. A total of 36 extracts prepared with different solvent ratios of ethanol-water (100, 80, 60, 40.20, 0% v/v) and their-glucosidase inhibitory activities determined. The FT-IR spectra of ethanol-water extracts measured in the region of 400 and 4000 cm1 at a resolution of 4 cm1. Multivariate analysis with a combination of orthogonal partial least-squares (OPLS) algorithm was used to correlate the bioactivity of the samples with the FT-IR spectral data. The OPLS biplot model identified several functional groups (C-H, C=O, C-N, N-H, C-O, and C=C) which actively induced-glucosidase inhibitory activity. © 2018 by the authors.

Author Keywords
Fingerprint; Fourier transform infrared spectroscopy; Salak fruit; α -glucosidase inhibitory activity

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