

RAPID ANALYSIS OF ALPHA-GLUCOSIDASE INHIBITORY ACTIVITY OF *PSYCHOTRIA MALAYANA* JACK LEAF APPLYING INFRARED FINGERPRINTING

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ABSTRACT

Psychotria malayana Jack is the plant belongs to Rubiaceae family and known in Malaysia as “meroyan sakat/salung”. Despite its potential use as an antidiabetic agent, a rapid analytical approach for the quality control of this plant has not been developed. Thus, the objective of this study was to establish a validated analytical method for the prediction for the alpha-glucosidase inhibitory activity of the leaves of *P. malayana* through implementation of Fourier Transformation Infrared Spectroscopy-fingerprinting utilizing a multivariate statistical calculation, orthogonal partial least square. The dried extracts prepared with different solvents ratios of methanol-water (0, 25, 50, 75, and 100% v/v), were evaluated for the bio-activity and analyzed via infrared spectroscopy. Orthogonal partial least square was accomplished through correlating the bioactivity and infrared spectra of every extract. The 100% methanol extract possessed the highest inhibitory activity against the alpha-glucosidase (IC₅₀ 2.83 ± 0.32 µg/mL). The loading plot from the statistical calculation revealed several functional groups, including hydroxyl (O-H), alkenyl (C=C), methylene (C-H), carbonyl (C=O), and secondary amine (N-H) groups, which actively induced the α-glucosidase inhibitory activity. The established validated model can be utilized in predicting the inhibitory activity of new set of *P. malayana* Jack leaves and can also be used as an assessment tool in the quality control of this plant.

Keywords: *Psychotria malayana*; α-glucosidase inhibition; OPLS; IR fingerprint.

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