

# Rapid Investigation of Alpha-Glucosidase Inhibitory Activity of *Psychotria malayana* Jack Leaf Using Infrared Fingerprinting

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**Background:** *Psychotria malayana* Jack is the plant belongs to Rubiaceae family and known in Malaysia as “meroyan sakat/salung”. The analytical approach used in the quality control of *Psychotria malayana* leaves has not been developed yet. Objectives: Therefore, this research was aimed to evaluate the  $\alpha$ -glucosidase inhibitory activity of *Psychotria malayana* Jack leave extracts in correlation to its Fourier transform infrared spectroscopy (FT-IR) fingerprint, utilizing orthogonal partial least square.

**Methodology:** The dried extracts prepared by sonication of different solvents ratios of methanol-water (0, 25, 50, 75, and 100% v/v), were evaluated for the  $\alpha$ -glucosidase inhibitory activity and analyzed via infrared spectroscopy. Multivariate data analysis was done through correlating the bioactivity and infrared spectra of every extract using orthogonal partial least square (OPLS) method.

**Results:** The 100% methanol extract of the leave is more effective against  $\alpha$ -glucosidase activity. The loading plot from multivariate data analysis identified several functional groups which actively induced  $\alpha$ -glucosidase inhibitory activity.

**Discussion and Conclusion:** The results of the present study developed the FT-IR spectrum profile for the medicinally important plant *Psychotria malayana* Jack that further confirms its medicinal values. Therefore, *Psychotria malayana* Jack leaves extract is medicinally potent that assist to develop this plant as an alternative anti-diabetic natural plant-based medicine.

**KEYWORDS:** *Psychotria malayana*,  $\alpha$ -glucosidase inhibition, fingerprint, orthogonal partial least square, infrared spectroscopy.

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