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Rapid investigation of α-glucosidase inhibitory activity of Clinacanthus nutans leaf using infrared fingerprinting (Article)

Murugesu, S.[a], Ahmed, Q.U.[a], Uzir, B.F.[a], Nik Yusoff, N.I.[a], Perumal, V.[b], Ibrahim, Z.[a], Abas, F.[c], Saari, K.[c], Khatib, A.[a,c]

[a]Department of Pharmaceutical Chemistry, Kulliyyah of Pharmacy, International Islamic University Malaysia, Kuantan, Pahang Darul Makmur 25200, Malaysia
[b]Faculty Pharmacy & Health Sciences, Universiti Kuala Lumpur Royal College of Medicine Perak, Ipoh, Perak Darul Ridzuan 30450, Malaysia
[c]Laboratory of Natural Products, Institute of Bioscience, Universiti Putra Malaysia, Serdang, Selangor Darul Ehsan 43400, Malaysia

Abstract

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The analytical method used in the quality control of Clinacanthus nutans leaves has not been well developed. Therefore, this study aimed to develop a simple analytical method to predict α-glucosidase inhibitory activity of this herb based on its infrared fingerprinting. The dried extracts obtained from maceration using solvents with different polarities were evaluated for the α-glucosidase inhibitory activity and analysed through infrared spectroscopy. Multivariate data analysis was performed by correlating the bioactivity and infrared spectrum of each extract using partial least square method. The loading plot from multivariate data analysis revealed that C–H and C[dbnd]O infrared signals from terpenoids in the extract were positively correlated with the α-glucosidase inhibitory activity. The developed partial least square model was validated through a testing on the external samples. The result concludes that the developed model is valid and capable of predicting α-glucosidase inhibitory activity of the external samples.

SciVal Topic Prominence

Topic: Vegetable oils | Oils and fats | edible oil

Prominence percentile: 95.800

Reaxys Database Information

View Compounds

Author keywords

Chemometrics | Clinacanthus nutans | Fingerprinting | Infrared spectroscopy | Partial least square | α-Glucosidase

Indexed keywords

Engineering controlled terms: Data handling | Drug products | Information analysis | Infrared spectroscopy | Multivariant analysis | Quality control | Spectrum analysis

Engineering uncontrolled terms

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Murugesu, S. , Ibrahim, Z. , Ahmed, Q.-U.
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Identification of α-glucosidase inhibitors from Clinacanthus nutans leaf extract using liquid chromatography-mass spectrometry-based metabolomics and protein-ligand interaction with molecular docking

Murugesu, S. , Ibrahim, Z. , Ahmed, Q.U.
(2019) Journal of Pharmaceutical Analysis

Correlation of FT-IR fingerprint and α-glucosidase inhibitory lak (salacca zalacca) utilizing orthogonal square

Engineering main heading: Least squares approximations

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