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Pertanika Journal of Tropical Agricultural Science
Volume 42, Issue 1, March 2019, Pages 139-153

Glucosidase inhibitory and antioxidant activities of entada spiralis ridl. (sintok) stem bark extracts (Article)

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Abstract

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Entada spiralis Ridl. (Leguminosae), locally known as Sintok or Beluru, is a tropical woody climber that grows widely in Malaysia. It is a valuable and well-known plant in herbal medicine due to its various traditional and medicinal applications. Crude extracts were obtained from the stem bark by using petroleum ether, chloroform, and methanol as extracting solvents and were then bioassayed for their biological potential. The antioxidant and α -glucosidase inhibitory activities of the extracts were assessed by using DPPH, ABTS, β -carotene, and α -glucosidase inhibitory methods. Qualitative analysis showed the presence of most of the phytochemicals in methanol extract; however, chloroform and petroleum ether extracts contained terpenoid and tannins as their major phytoconstituents, respectively. The methanol extract contained the highest amount of total phenolics ($42.5 \pm 15.85 \mu\text{g GAE/mg}$) and flavonoids ($28.94 \pm 2.93 \mu\text{g QE/mg}$), and showed the most potent α -glucosidase inhibitory activity with an IC₅₀ value of $20.67 \mu\text{g/mL}$. The same methanol extract exhibited the highest β -carotene bleaching inhibition (27% at 1 mg/mL), while methanol and chloroform extracts exhibited good radical scavenging activities (IC₅₀ 37.29 ± 0.05 and $90.84 \pm 3.12 \mu\text{g/mL}$, respectively) against ABTS and DPPH radicals. Bioassay-guided silica gel column chromatography purification of the most active methanol extract afforded 3, 4',5,7-tetrahydroxyflavone (6 mg). The compound displayed promising inhibitory activities against free radicals as well as α -glucosidase enzyme. These results suggest the potential use of *E. spiralis* Ridl. stem bark as a therapeutic agent against hyperglycaemia. © Universiti Putra Malaysia Press.

SciVal Topic Prominence ⓘ

Topic: alpha-Glucosidases | alpha-Amylases | phenolic content

Prominence percentile: 89.726 ⓘ

Reaxys Database Information

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Author keywords

3,4',5,7-tetrahydroxyflavone Antioxidant-glucosidase Carotene Crude extracts Dpph Entada spiralis ridl.

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ISSN: 15113701

Source Type: Journal

Original language: English

Document Type: Article

Publisher: Universiti Putra Malaysia