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Antihypertensive assay-guided fractionation of syzygium polyanthum leaves and phenolics profile analysis using lc-qtof/ms (Article) (Open Access)

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Abstract

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Introduction: Syzygium polyanthum leaves extract that contains gallic acid as the major phenolic compound has shown significant antihypertensive effect, however the amount of gallic acid was inversely-related with magnitude of this effect. This study aimed to conduct bioassay-guided fractionation of S. polyanthum leaves with gallic acid as a reference compound, and to screen for other possible compounds responsible for the antihypertensive effect. Methods: S. polyanthum leaves were extracted using n-hexane, ethyl acetate, methanol, and water. The most active crude extract was fractionated using column chromatography and analyzed for total phenolic content (TPC) (n=3). Crude extracts and the derived fractions were intravenously administered into pentobarbital-anaesthetized Spontaneously Hypertensive rats (n=5) for recording of blood pressure parameters. Liquid Chromatography-Quadruple Time-Off-Flight/Mass Spectrometry was used for determination of chemical composition. One-way and two-way ANOVA were used for statistical analysis using GraphPad® PRISM Version 6. Results: Fractionation of aqueous S. polyanthum leaves extract (ASP) afforded nine fractions, later combined into three fractions (F1ASP, F2ASP, and F3ASP) based on the thin-layer chromatography profiles. ASP has the highest TPC while F2ASP has the lowest TPC. All fractions exhibited significant antihypertensive property, but F2ASP was the most active fraction. Few phenolics with related antihypertensive effects such as 1-galloyl glucose (a gallic acid-derivative majorly found in F2ASP and F3ASP), and other compounds such as polydatin, sesamol, brazilin, eugenol, ellagic acid, kukoamine A, and cyclocurcumin were found across all active fractions. Conclusion: These phenolics may partly contribute to the antihypertensive effect of S. polyanthum leaves, thus further isolation study is recommended. © 2020 Phcogj.Com. This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International license.

SciVal Topic Prominence

Topic: Syzygium | Laurus | Basil Oil

Prominence percentile: 53.270

Chemistry database information

Substances

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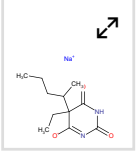
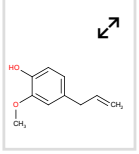
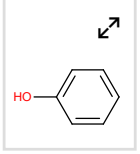
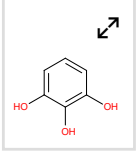
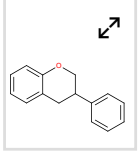
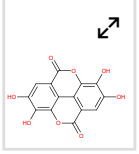

Author keywords

Antihypertensive | Bioassay-guided | LCMS | Syzygium polyanthum | Total phenol content (TPC)

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