Pharma+BioAsia2016

P31

Authentication of Isolated Hydroxychavicol From P. Betle Linn. Leaves Using Nuclear Magnetic Resonance Spectroscopy

Hazrina Hadi, Hawa Mas Azmar Ahmad
International Islamic University Malaysia

Introduction: Nuclear magnetic resonance (NMR) spectroscopy is an analytical chemistry technique used for the chemical structural determination. This valuable tool is used to study nuclei, commonly hydrogen ($^1$H) and carbon ($^{13}$C). NMR provides information about the number of atoms of the studied nuclei that are magnetically separated as well as the nature of the environment of the nuclei.

Aims: In this study, NMR is used to identify the isolated hydroxychavicol. The isolated hydroxychavicol was dissolved in deuterated methanol.

Methods: The sample is analyzed for 1D NMR ($^1$H and $^{13}$C) spectra using 500 MHz NMR (Bruker; Avance III Ultrashield Plus; Switzerland) located in Universiti Malaysia Pahang. The target directed isolation of hydroxychavicol was performed by comparing bioautographic profile of hydroxychavicol-rich fraction to that of hydroxychavicol standard. Hydroxychavicol is a known compound with molecular formula of C$_9$H$_{10}$O$_2$ and molecular weight of 150.174 g/mol.

Results and discussion: $^1$H and $^{13}$C NMR elucidated the structure of the isolated hydroxychavicol. The $^1$H NMR spectrum furnished 10 protons at chemical shifts of $\delta_h 3.21, 4.90, 4.98, 5.9, 6.49, 6.61,$ and $6.67$ ppm. Based on the spectrum, a broad spectrum was displayed meaning there is a hydroxyl group in the structure. The $^{13}$C NMR spectrum displayed the nine carbons at chemical shifts $\delta_c 40.64, 115.33, 116.31, 116.76, 120.87, 132.99, 139.57, 144.46,$ and $146.17$ ppm.

Conclusion: The isolated hydroxychavicol was successfully being authenticated by NMR.