UNIVERSITI TEKNOLOGI MARA

DEREPLICATION STRATEGY AND ISOLATION OF RESVERATROL-BASED OLIGOMERIC POLYPHENOLS FROM *DIPTEROCARPUS SEMIVESTITUS* (DIPTEROCARPACEAE)

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ABSTRACT

The acetone extract of *Dipterocarpus semivestitus* stem was studied for its resveratrol-based oligomeric polyphenols through dereplication strategy using tandem mass spectrometry. The phytochemistry investigation resulted in the identification of two oligostilbenes through dereplication technique and isolation of nine oligostilbenes together with a coumarin. The dereplication technique was employed at the earliest stage of the study to identify the compounds. The crude extract was subjected to an ion trap LC-MS^n system with electrospray ionisation interface in positive mode and the MS^n spectra was extracted to study their fragmentation patterns. Two oligostilbene tetramers; hopeaphenol and hemsleyanol D, were successfully identified by comparing their mass fragmentation patterns with an in-house database. The information obtained from the mass fragmentation patterns also suggest the presence of oligostilbenes that are unknown to the database, including their condensation degree. The isolation process involving the use of MPLC for fractionation and repetitive preparative HPLC for isolation. The purification of closely eluted compounds was accomplished using recycling HPLC. Out of the nine isolated oligostilbenes, three are dimers (ε-viniferin, *Z*-ε-viniferin, and ampelopsin F) and six are trimers (α-viniferin, caraphenol A, *E*-miyabenol C, *Z*-miyabenol C, *E*-*cis*-*cis*-miyabenol C and *Z*-*cis*-*cis*-miyabenol C). The coumarin was identified as scopoletin. Their structures were established by means of spectroscopic methods and comparison with published data. *Z*-*cis*-*cis*-miyabenol C is new resveratrol trimer and Caraphenol A is the first occurrence in *Dipterocarpus* genus.

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