abstract‘

Bioassay-guided fractionation and chemical investigation of Colvillea racemosa stems led to identification of two new α,β-dihydroxydihydrochalcones, colveol A (1) and colveol B (2) along with fifteen known compounds. The structures were elucidated via interpretation of spectroscopic data. The absolute configurations of the dihydrochalcones1and2wereassignedbyacombinationofchemicalmodificationandelectroniccirculardichroism data. The isolated compounds were evaluated for their inhibition activity toward recombinant human monoamine oxidases (rhMAO-A and -B). Compound 1 demonstrated preferential inhibition against hMAO-A isoenzyme (IC50 0.62μM, SIA/B 0.02) while S-naringenin (13) and isoliquiritigein (15) demonstrated preferential hMAO-B inhibition (IC50 0.27 and 0.51μM, SIA/B 31.77 and 44.69, respectively). Fisetin (11) showed inhibition against hMAO-A with IC50 value of 4.62μM and no inhibitory activity toward hMAO-B up to 100μM. Molecular docking studies for the most active compounds were conducted to demonstrate the putative binding modes. It suggested that 1 interacts with Gln215, Ala111, Phe352, and Phe208 amino acid residues which have a role in the orientation and stabilization of the inhibitor binding to hMAO-A, while S-naringenin (13) occupies both entrance and substrate cavities and interacts with Tyr326, a critical residue in inhibitor recognition in hMAO-B.