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## Heavenly blue flavonoids ameliorate alzheimer's disease in in vitro and in animal models

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Phenolic compounds are the principle bioactive compounds exist in Heavenly Blue (*Ipomoea*). Little was found in the literature concerning the previous phytochemical and biological studies of *Ipomoea tricolor*. Six compounds were identified from leaves of this plant: rhoifolioside (1), luteolin-7-O- $\beta$ -D-glucoside (2), 5,7,4'-trihydroxy-6-methoxyflavone-7-O- $\beta$ -D-glucoside (3), apigenin (4), 5,7-dihydroxy-3,3',4'-trimethoxyflavone (5), and 2-hydroxymethylhydroquinone-6-carbaldehyde (6). The structures of these compounds were elucidated on the basis of chemical, chromatographic, and spectroscopic methods. All metabolites were reported for the first time in the genus *Ipomoea*. *In vitro* and in animal model

investigations of the flavones 1, 3, and 5 were assessed as modulators of Alzheimer's amyloid-beta peptide (A $\beta$ ) production. The results indicated that all the three flavones were able to modulate the A $\beta$  concentration both *in vitro* and in animal model without any cytotoxic effect. A dose dependent inhibition of A $\beta$ 42 secretion was observed. The results showed no inhibition activity of these flavones against cyclooxygenase (COX)-1 and COX-2 up to 500 nM concentration and concomitant reduction in prostaglandin synthesis, indicating that the reduction in A $\beta$ 42 levels may be independent of COX activity.

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