

Chemical Constituents of *Matthiola Longipetala* Extracts: In Vivo Antioxidant and Antidiabetic Effects in Alloxan Induced Diabetes Rats

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Abstract : The whole plant of *Matthiola longipetala* (Brassicaceae) was extracted by 70% methanol to give the total aqueous methanol extract (AME), which was defatted by hexane yielded hexane extract (HE) and defatted AME (DAME). HE was analyzed through GC/MS assay and revealed the detection of 28 non-polar compounds. In addition, the chemical investigation of DAME led to the isolation and purification of twelve flavonoids and three chlorogenic acids. Their structures were interpreted through chemical (complete and partial acid hydrolysis) and spectroscopic analysis (MS, UV, 1D and 2D NMR). Among them, nine compounds have been isolated for the first time from *M. longipetala*. Moreover, LC-ESI-MS analysis of DAME was achieved to detect additional 46 metabolites, including phospholipids, organic acids, phenolic acids and flavonoids. The biological activity of AME, HE and DAME against alloxan inducing oxidative stress and diabetes in male rats was investigated. Diabetes was induced using a single dose of Alloxan (150 mg/kg b.wt.). HE and DAME significantly increased serum GSH content in rats (37.3 ± 0.7 and 35.9 ± 0.6 mmol/l) compared to diabetic rats (21.8 ± 0.3) and vitamin E (36.2 ± 1.1) at $P < 0.01$. Also, HE, DAME and AME revealed a significant acute anti-hyperglycemic effect potentiated after four weeks of treatment with blood glucose levels of 96.2 ± 5.4 , 98.7 ± 6.1 and 98.9 ± 8.6 mg/dl, respectively, compared to diabetic rats (263.4 ± 7.8) and metformin group (81.9 ± 2.4) at $P < 0.01$.

Keywords : Brassicaceae, Flavonoid, LCMS/MS, *Matthiola*

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