

Chemical Analysis and Cytotoxic Evaluation of *Asphodelus Aestivus* Brot. Flowers

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Abstract : *Asphodelus aestivus* Brot. Is a wild plant distributed in Egypt and is considered one of the five *Asphodelus* spp. from the family Asphodelaceae; it grows in dry grasslands and on rocky or sandy soil. The chemical components of *A. aestivus* flowers extract were analyzed using different chromatographic and spectral techniques and led to the isolation of two anthraquinones identified as emodin and emodin-O-glucoside. In addition to, five flavonoid compounds; kaempferol, Kaempferol-3-O-glucoside, Apigenin-6-C-glucoside-7-O-glucoside (Saponarine), luteolin 7-O- β -glucopyranoside, Isoorientin-O-malic acid which is a new compound in nature. The LC-ESI-MS/MS analysis of the flower extract of *A. aestivus* led to the identification of twenty-two compounds characterized by the presence of flavones, flavonols, and flavone C-glycosides. While GC/MS analysis led to the identification of 24 compounds comprising 98.32% of the oil, the major components of the oil were 9, 12, 15-Octadecatrienoic acid methyl ester 28.72%, and 9, 12-Octadecadienoic acid (Z, Z)-methyl ester 19.96%. In vitro cytotoxic activity of the aqueous methanol extract of *A. aestivus* flowers against HEPG2, HCT-116, MCF-7, and A549 culture was examined and showed moderate inhibition (62.3 ± 1.1)% on HEPG2 cell line followed by (36.8 ± 0.2)% inhibition on HCT-116 and a weak inhibition ($5.7 \pm 0.0.2$) on MCF-7 cell line followed by (4.5 ± 0.4) % inhibition on A549 cell line and this is considered the first cytotoxic report of *A. aestivus* flowers.

Keywords : Anthraquinones, *Asphodelus aestivus*, Cytotoxic activity, Flavonoids, LC-ESI-MS/MS

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