Isolation of New Cytotoxic Metabolites from *Cleome droserifolia* Growing in Egypt

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The sulforhodamine B (SRB) assay was used to assess the cytotoxicity of the aqueous (AqEx) and ethanolic (AlEx) extracts, respectively, of the aerial parts of *Cleome droserifolia* (Forssk.) Del. against two human cancer cell lines, breast (MCF7) and colon (HCT116) adenocarcinoma. AqEx exhibited higher cytotoxic activity, thus its four subfractions, namely *n*-hexane (HxFr), chloroform (ClFr), ethyl acetate (EtFr), and *n*-butanol (BuFr) fractions, were also tested. Purification of the more active ClFr and EtFr yielded nine compounds. Six terpenoids, guai-7(11),8-diene (C1), 1-hydroxy-guai-3,10(14)-diene (C2), 18-hydroxydollabela-8(17)-ene (C3), (24E)-stigmasta-5,8-dien-3β-ol (C4), teucladiol [1U5β-guai-10(14)-ene-4β,6β-diol] (C5), and buchariol (4,10-epoxy-6β-hydroxyguaiane) (C6), were isolated from ClFr and three flavonol glycosides, isorhamnetin-3-O-β-D-glucoside (F1), quercetin-3′-methoxy-3-O-(4′-acetylrhamnoside)-7-O-β-rhamnoside (F2), and kaempferol-4′-methoxy-3,7-O-dirhamnoside (F3), were isolated from EtFr. Compounds C3 and F2 are new in nature. The isolated compounds were identified using various spectroscopic methods (UV, IR, 1H NMR, 13C NMR, HMQC, HMBC, and COSY). Compounds C1, C3, F2, and F3 showed significant cytotoxic activities against the two tested cell lines comparable to those of the anticancer drug doxorubicin®. The new compound C3 was the most active as it had the lowest IC50 values, (1.9 ± 0.08) and (1.6 ± 0.09) µg/ml corresponding to 6.5 and 5.4 µM, against MCF7 and HCT116 cells, respectively.

Key words: Cytotoxic, *Cleome droserifolia*, Flavonols, Terpenes