



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## Secondary Metabolites of *Phlomis viscosa* and Their Biological Activities

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**Abstract:** Further phytochemical studies on the aerial parts of *Phlomis viscosa* (Lamiaceae) led to the isolation of 24 compounds: 3 iridoid glycosides, 10 phenylethanoid glycosides, a megastigmane glycoside and a hydroquinone glycoside, as well as 2 lignan glucosides and 7 neolignan glucosides, 1 of which is new (17b). Compound 17b was obtained as a minor component of an inseparable mixture (2:1) of 2 neolignan glucosides (17a/b), and characterized as 3',4'-O-dimethylcedrusin 9-O- $\beta$ -glucopyranoside. Full NMR data of the known 8-O-4' neolignan glucoside, erythro-1-(4-O- $\beta$ -glucopyranosyl-3-methoxyphenyl)-2-[2-methoxyl-4-[1-(E)-propene-3-ol]-phenoxy]-propane-1,3-diol (18) are also reported. All isolated compounds were screened for cell growth inhibition versus 3 tumor cell lines (MCF7, NCI-H460, and SF-268) and several phenylethanoid glycosides were found to possess weak antitumoral activity. The phenylethanoid glycosides were also evaluated for their free radical (DPPH) scavenging, antibacterial and antifungal activities. The free radical (DPPH) scavenging activities of verbascoside (4), isoacteoside (5), forsythoside B (10), myricoside (13) and samioside (14) were found to be comparable to that of dl- $\alpha$ -tocopherol. Compounds 4, 5, 10 and 14 (MIC: 500  $\mu$ g/mL) as well as Leucosceptoside A (8) and 13 (MIC:1000  $\mu$ g/mL) showed very weak activity against Gram (+) bacteria.

**Key Words:** *Phlomis viscosa*, iridoids, phenylethanoid glycosides, lignan glucosides, 8-O-4'-oxylignan, neolignan glucosides, biological activity

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