Antiangiogenic activity of iridoids from Lamiaceae and Plantaginaceae species

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Iridoids are a group of natural compounds, occurring in a great number of plant families, usually as glycosides. The considerable interest in iridoids is due to their ecological role as plant protectant and to their wide spectrum of biological activities, including cardioprotection, neuroprotection, anti-inflammatory, and anticancer activities [1]. Interestingly, some iridoid glycosides were found to have a potent antiangiogenic activity [2-3]. Angiogenesis process may be involved in tumour development, thus its inhibition appears to be a promising approach in anti-inflammatory and anticancer therapies [4]. Within this context, the aim of the present study was the isolation and characterization of iridoid derivatives from two Lamiaceae species, *Stachys ocymastrum* (L.) Briq and *Premna resinosa* (Hochst.) Schauer leaves, and from *Anarrhinum pedatum* Desf. aerial parts, belonging to Plantaginaceae family, together with the evaluation of their antiangiogenic potential. The chemical study of investigated plants afforded to the isolation of one new and four known iridoid glycosides from *S. ocymastrum*, nine known iridoid diglycosides from *P. resinosa,* and ten new and five known iridoid glycosides from *A. pedatum*, identified by NMR and MS analyses. The antiangiogenic effects of the isolates were reported on new blood vessels formation using two in vivo models: zebrafish embryos and chick embryo chorioallantoic membrane [5]. Among the tested iridoids, β-hydroxyipolamiide, ipolamiide, buddlejoside A_5, and 6′-*O*-menthiafoloylmussaenosidic acid-11-(5-*O*-β-D-fructopyranosyl) ester showed a significant antiangiogenic activity in both assays, reducing the growth of blood vessels. Weaker antiangiogenic effects were also observed for some other iridoids, thus suggesting this class of compounds as promising antiangiogenic agents.

References:

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