Novel flavones in *Lamium* L. genus

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INTRODUCTION

Lamium L. (Family: Lamiaceae alt. Labiatae) is a genus that includes about forty species distributed in Europe, Asia and Africa. Several *Lamium* L. species have been used in traditional and officinal medicine for the treatment of several disorders [1]. Despite the importance of the flavonoid compounds in the beneficial activities of plants, there are few studies focusing this class of second metabolites.

In this context, we herein focus the phenolic composition of *Lamium album* L., in order to improve the knowledge on *Lamium* L. genus.

METHODS

⇨The *L. album* purified extract was obtained by extraction with an 80% ethanolic solution (v/v) and further purification on Strata SPE C18-E cartridges [2].

⇨The main flavones in the extract were identified by means of HPLC-DAD and ESI-MS^n techniques and the structure of the major flavone was confirmed by NMR spectroscopy.

RESULTS AND DISCUSSION

The phenolic composition of *L. album* purified extract is mainly composed of phenylethanoid glycosides, namely verbascoside and isoverbascoside. Importantly, isoscutellarein derivatives represent about 30% of its total phenolics.

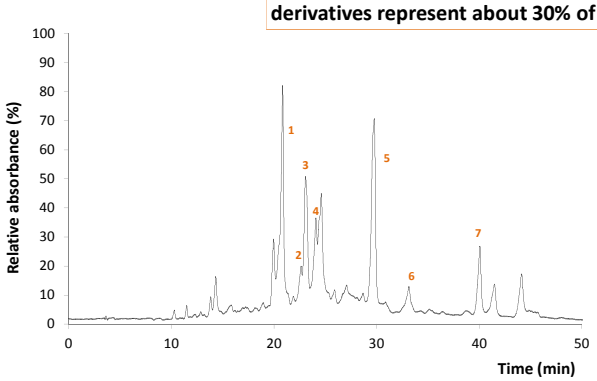
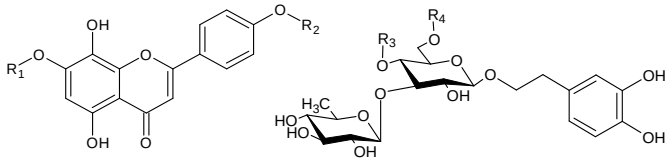


Figure 1. Chromatographic profile of *L. album* purified extract at 340 nm

Figure 2. Main phenolic compounds of *L. album* purified extract



Peak	R_1	R_2	[M-H]−	Compound	mg/g extract
3	H	Allo-Glc	609	Isoscutellarein-7-*O*-allosyl(1→2)glucoside	26.8±5.3
4	H	Ac-Allo-Glc	651	Isoscutellarein-7-*O*-(6-*O*-acetylallosyl)(1→6)glucoside	23.6±6.7
5	H	Ac-Allo-Glc	651	Isoscutellarein-7-*O*-(6-*O*-acetyl allosyl)(1→2)glucoside	37.4±4.4
6	Me	Allo-Glc	623	4'-*O*-Methylisoscutellarein-7-*O*-allosyl(1→2)glucoside	16.6±6.5
7	Me	Ac-Allo-Glc	665	4'-*O*-Methylisoscutellarein-7-*O*-(6-*O*-acetylallosyl)(1→2)glucoside	19.4±5.2
	R_3	R_4			
1	Caff	H	623	Verbascoside	233.7±13.6
2	H	Caff	623	Isoverbascoside	39.2±5.6
				Total Phenolics	500.7±50.0

CONCLUSION

The present work detected, for the first time, isoscutellarein derivatives in *Lamium* genus.

The role of these phenolic derivatives in the biological properties, namely on the antioxidant properties of the *L. album* phenolic extract (EC_{50} DPPH = 11.2 ± 0.9 µg/mL; EC_{50} Reducing power = 67.9 ± 8.7 µg/mL and ROS protection= 27%) of the plant are under investigation.

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