



UNUSUAL FLAVONES IN *CYTISUS* DESF.

Pereira O R¹, Domingues M R², Silva A M², Cardoso S M³

¹CERNAS - Escola Superior Agrária, Instituto Politécnico de Coimbra, Bencanta, 3040-316 Coimbra, Portugal; Departamento de Tecnologias de Diagnóstico e Terapêutica, Escola Superior de Saúde, Instituto Politécnico de Bragança, Av. D. Afonso V, 5300-121 Bragança, Portugal;

²Departamento de Química & QOPNA, Universidade de Aveiro, 3810-193 Aveiro, Portugal;

³CERNAS - Escola Superior Agrária, Instituto Politécnico de Coimbra, Bencanta, 3040-316 Coimbra, Portugal; CIMO - Escola Superior Agrária, Instituto Politécnico de Bragança, Campus de Santa Apolónia - 5301-854, Bragança, Portugal

INTRODUCTION

Cytisus Desf. (Fabaceae) is a diversified genus enclosing approximately sixty species, which are particularly found around the Mediterranean Sea. Many plants of this genus exhibit bioactive properties such as diuretic, hypnotic, anxiolytic, antiparasitic, antidiabetic and antioxidant [1] and, in particular the latter, has been closely associated to the high content in flavonoids [2].

The present work aims to contribute to the knowledge of *Cytisus* Desf. chemical composition, through the identification of new flavonoids in that genus.

METHODS

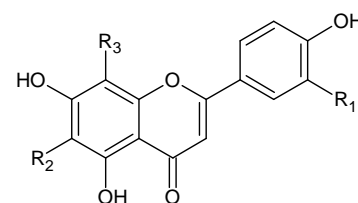
The ethanolic extract of *Cytisus multiflorus* was obtained by three extractions with 80% ethanol (v/v) at room temperature, for 1 hour. The filtrated solutions were combined, concentrated, frozen at -20 °C and freeze-dried. The phenolic characterization of the extract was performed by HPLC reversed-phase fractionation and further analysis of the major phenolic compounds by ESI-MS and MSⁿ. The HPLC analysis was performed on a RP-C18 column 250 mm× 4 mm id, 5µm bead diameter (Temperature of 30°C, flow rate of 1 mL/min). The mobile phase comprised (A) 0,1% formic acid in water and (B) 0,1% formic acid in acetonitrile and the solvent gradient started with 90% A and 10% B, reaching 40% B at 30 min, 5% B at 40 min, then returning to the initial conditions at 50 min. HPLC- collected fractions were directly injected into the ESI source by means of a syringe pump, at a flow rate of 8 µL min⁻¹. Studies were performed in the negative mode using a Linear Ion trap LXQ (ThermoFinnigan, San Jose, CA, USA). Typical ESI conditions were the same as previously described [3].

RESULTS AND DISCUSSION

ESI-MSⁿ fragmentation data of new compounds is shown in Table 1 and their proposed structures are represented in Fig.1.

Table 1- ESI-MSⁿ data fragmentation and identification of flavones

MW	Compound	Fragmentation ESI- MS ⁿ
580	2''-O-pentosyl-6-C-hexosyl-luteolin	579 → 459, 429, 357, 327, 285
	2''-O-pentosyl-8-C-hexosyl-luteolin	
564	2''-O-pentosyl-6-C-hexosyl-apigenin	563 → 443, 413, 293
	2''-O-pentosyl-8-C-hexosyl-apigenin	
724	6''-O-(3-hydroxy-3-methylglutaryl)-2''-O-pentosyl-C-hexosyl-luteolin	723 → 661, 621, 579, 459, 357, 327
708	6''-O-(3-hydroxy-3-methylglutaryl)-2''-O-pentosyl-C-hexosyl-apigenin	707 → 563 → 413 → 293



R₁=OH; R₂=H; R₃=A (MW 580)
R₁=OH; R₂=H; R₃=A (MW 580)
R₁=R₂=H; R₃=A (MW 564)
R₁=R₂=H; R₃=A (MW 564)
R₁=OH; R₂=H; R₃=B (MW 724)
R₁=R₂=H; R₃=B (MW 708)

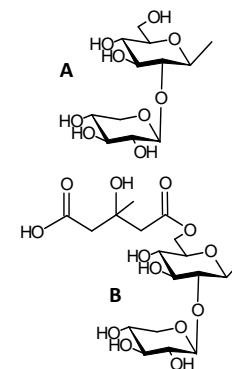


Figure 1- Tentative structures of flavones detected for the first time in *Cytisus* genus

REFERENCES

1. Gião, M. S. et al. (2007). J Sci Food Agr 87: 2638-2647
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3. Falcão S.I. et al. (2011) Anal Bioanal Chem: 396: 887-897

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CONCLUSION

The present work allowed to detect six new flavones (derivatives of luteolin and apigenin) in *Cytisus* Desf. genus. Further work is now being undertaken in order to determine their content as well as their contribution for the beneficial properties of the *Cytisus* Desf. phenolic extract.