

Identification of Rare Flavonoids from *Scleranthus perennis*

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Scleranthus perennis L. (Caryophyllaceae) is an endemic species widely distributed in Europe, Western Asia and North Africa [1]. The aim of our study was to analyze the polyphenolic profile of extracts obtained from aerial parts of *S. perennis*. Finally, the present study describes isolation and structure elucidation of flavonoids from aerial parts of *S. perennis*.

Experimental

Compound **1** exhibited $[M+H]^+$ at m/z 637 and its compatible with the molecular formula $C_{29}H_{32}O_{16}$. Obtained results were corroborated by the ^{13}C NMR and 1H NMR (Tab. 1). After acid hydrolysis and then sugars derivatization their MS spectra analysis showed the presence of xylose and glucose. 2D NMR analysis confirmed positions of methoxyl and acetyl groups. Compound **2** showed $[M+H]^+$ at m/z 679 and its corresponding to the molecular formula $C_{31}H_{34}O_{17}$ and exhibited similar NMR spectra to compound 1. There is identical flavone skeleton and sugar side chain except of acetyl group at the xylose.

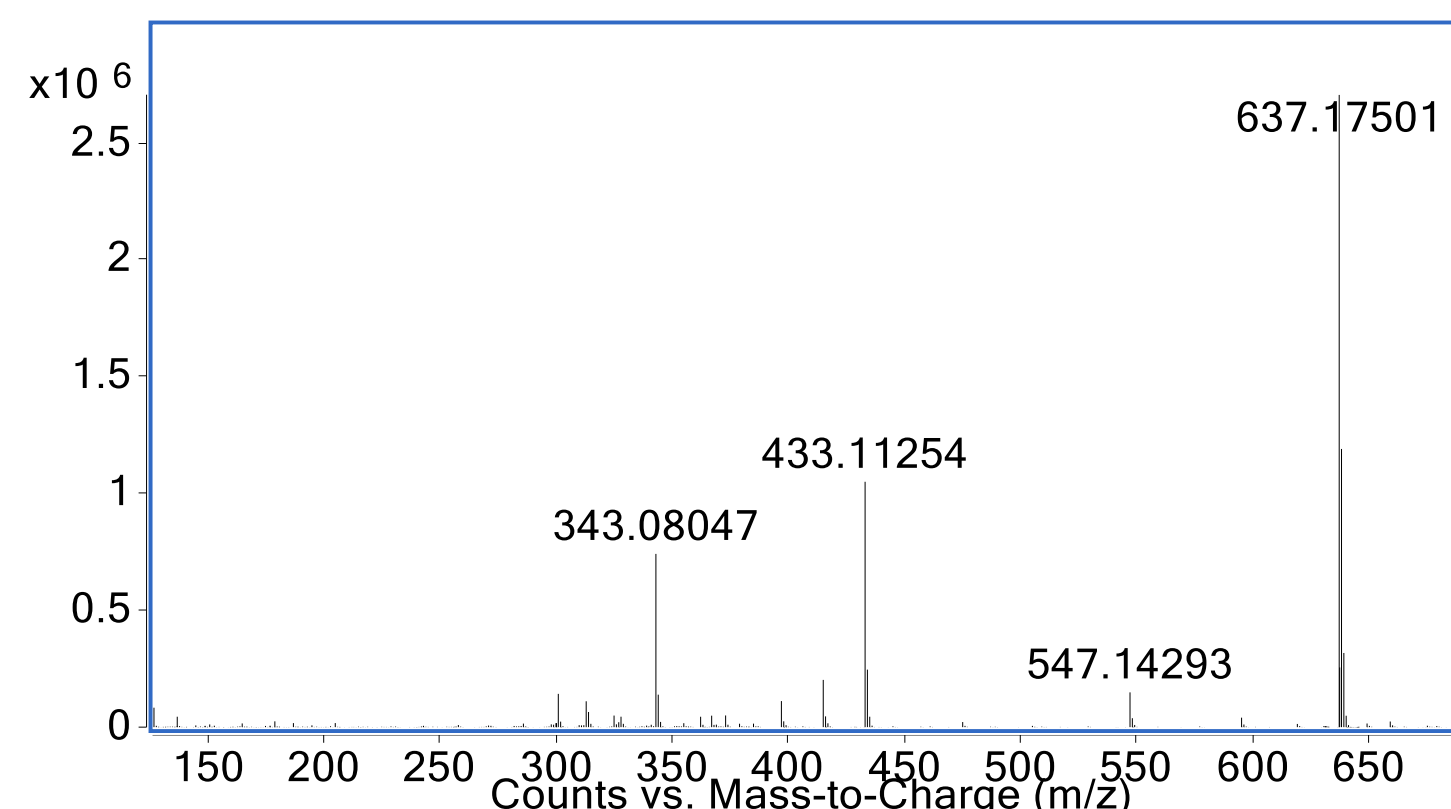
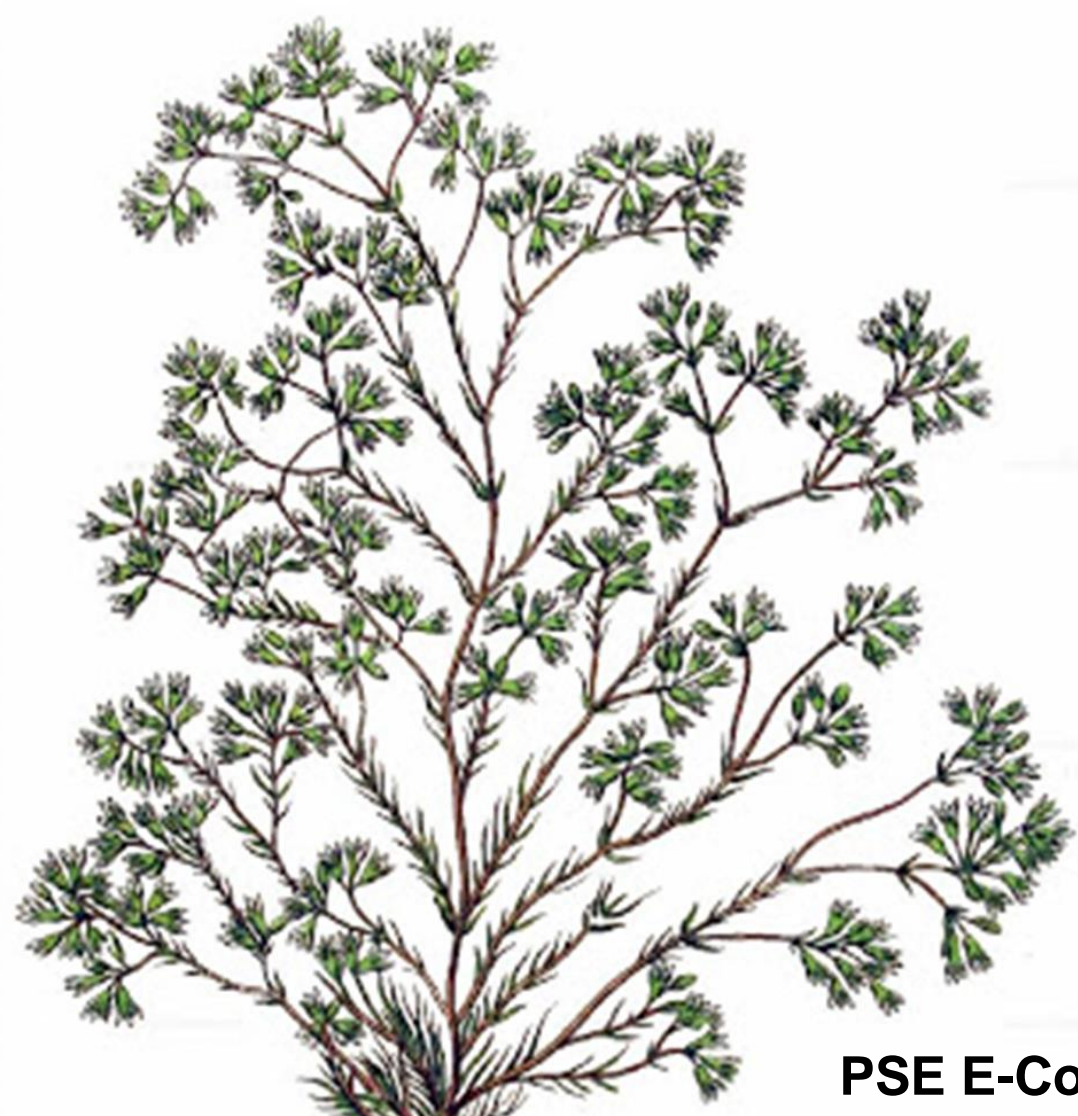


Figure 1. Positive Ion Mass Fragmentation of compound 1.

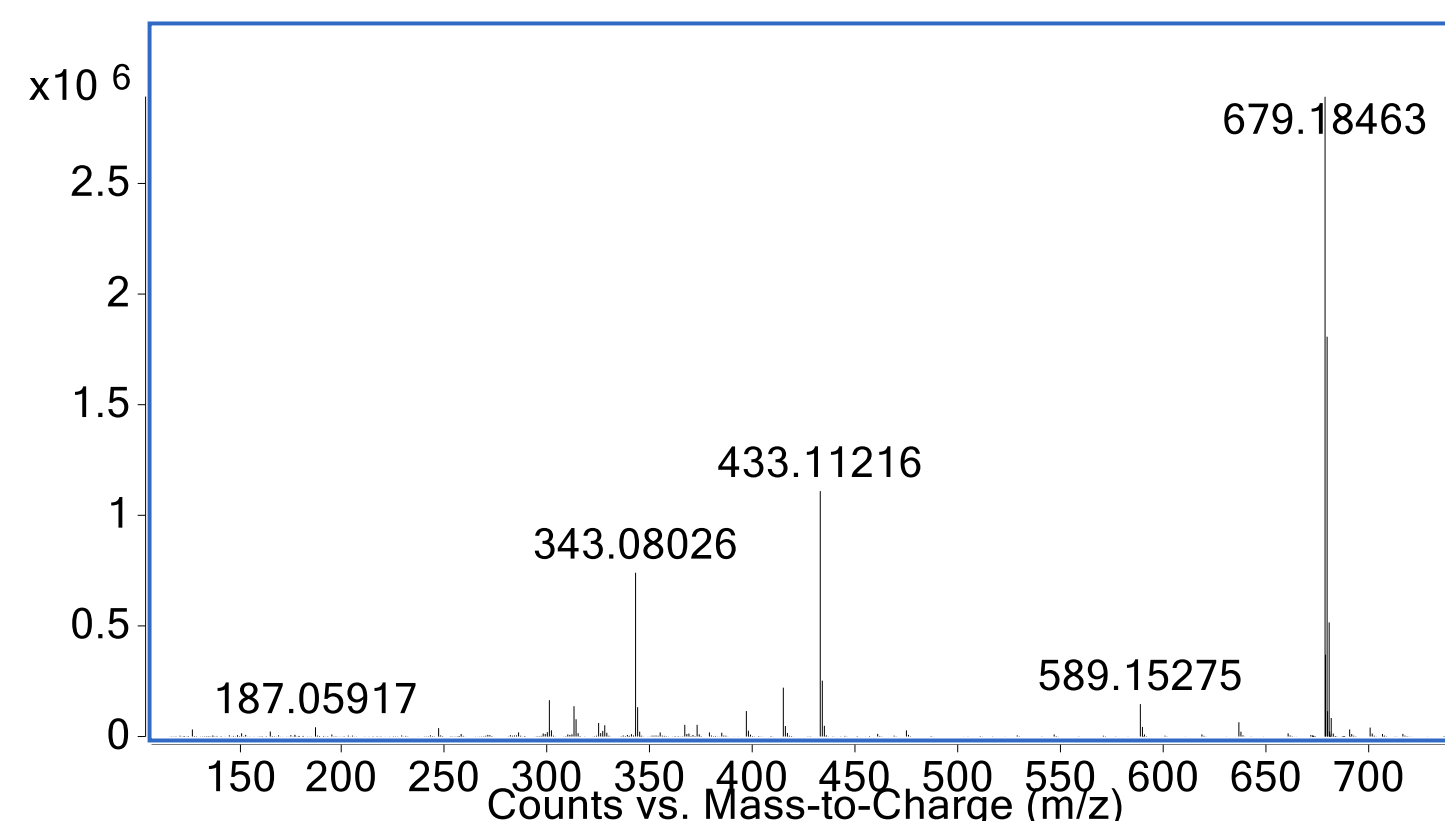


Figure 2. Positive Ion Mass Fragmentation of compound 2.

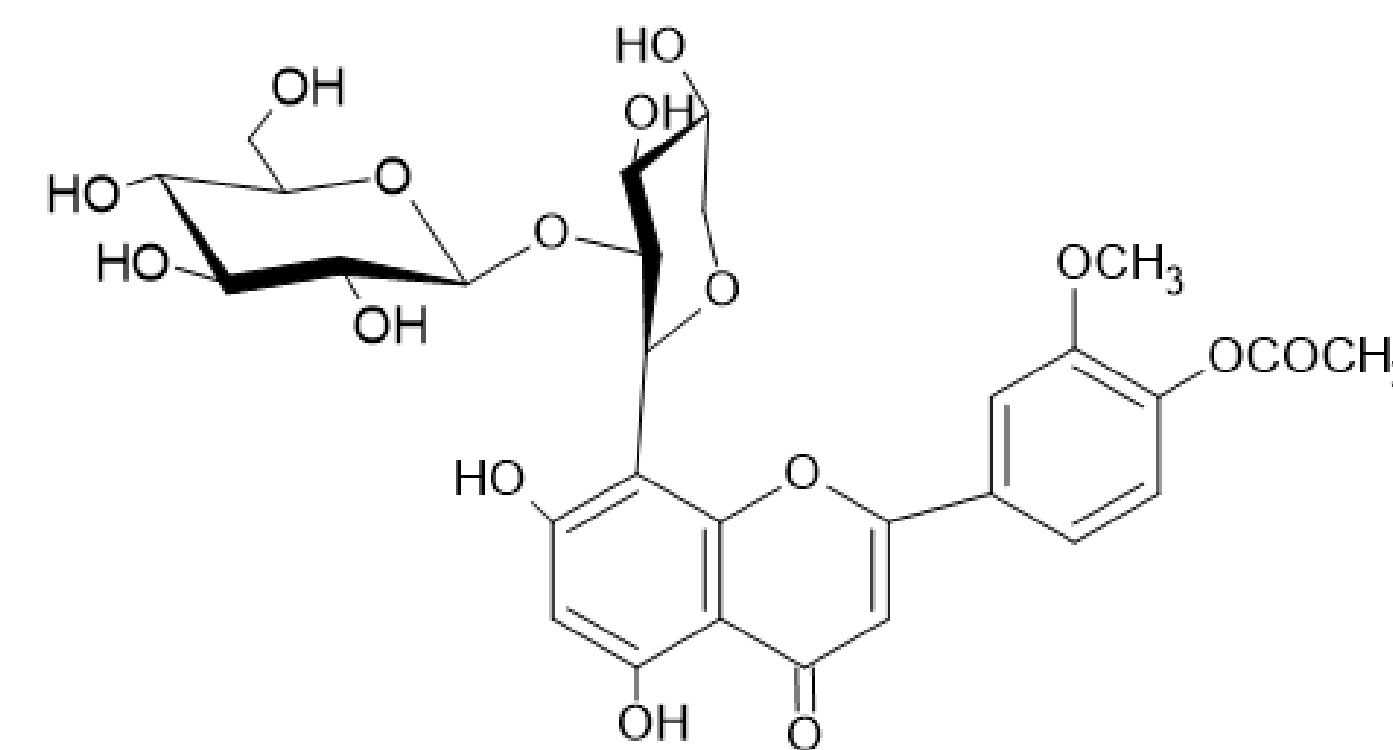


Figure 3. Compound 1.

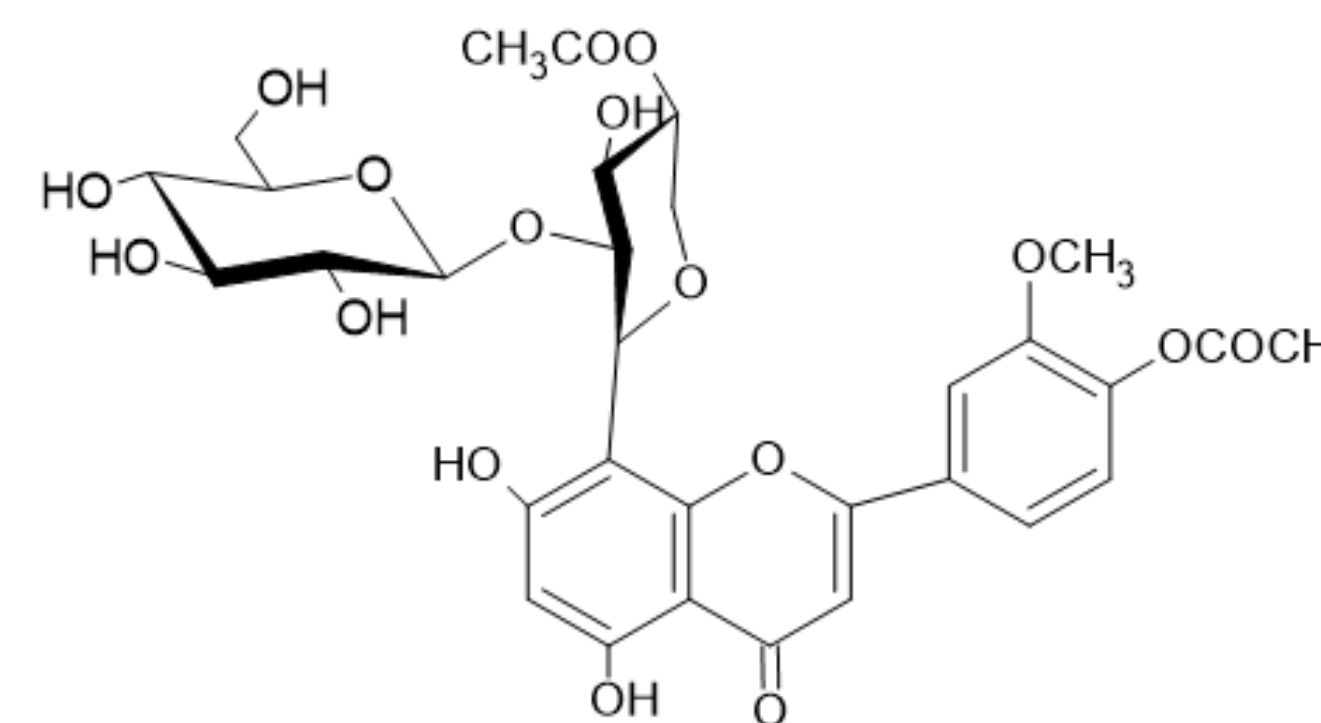


Figure 4. Compound 2.

Table 1. 1H and ^{13}C NMR spectra data of compounds **1** and **2**.

No. C-	Compound 1		Compound 2	
	^{13}C , δ	1H , δ	^{13}C , δ	1H , δ
Flavone ring				
C4	184.15		184.19	
C2	166.26		171.69	
C7	164.74		166.29	
C5	162.63		163.00	
C9	156.87		158.51	
C4'	151.97		152.17	
C3'	149.50		149.58	
C1'	124.19		124.14	
C6'	121.84		121.87	
C5'	116.80	6.93; d	116.85	6.96; d
C2'	111.21	7.65; s	111.19	7.66; s
C8	105.34		105.32	
C3	104.21		104.17	
C6	100.94	7.48; d	101.02	7.48; s
-OCH3	56.71	4.01; s	56.73	4.01; s
-OAc	172.93 20.73	1.94; s	171.69 20.48	1.94 s
Xylose				
C2''	82.32		82.32	
C1''	76.13	5.11; d	76.62	4.76; m
C3''	75.88		76.02	
C5''	71.97		71.96	
C4''	70.06		70.07	
C6''	64.56		64.55	
-OAc	-		172.92 20.53	1.94; s
Glucose				
C1'''	106.17	4.28; d	106.20	4.34; m
C3'''	77.89		77.89	
C2'''	76.04		76.02	
C5'''	75.01		73.96	
C4'''	70.62		70.63	
C6'''	63.02		62.74	

Conclusions

To the best of our knowledge, 5,7-dihydroxy-3'-methoxy-4'-acetoxyflavone-8-C- β -D-xyloside-2''-O-glucoside (compound **1**) and 5,7-dihydroxy-3'-methoxy-4'-acetoxyxyloside-2''-O-glucoside (compound **2**) is reported for the first time in the aerial parts of *S. perennis*. Taking into consideration that plant species is widely distributed in Europe, this biological and biochemical studies should be carried out. In conclusion, isolation and identification of further flavonoid compounds is currently being carried out.

References

- [1] Simssen, R.D.; Jones-Garnock, P.J.; Chambers, G.K. *Australian Syst. Bot.* **2003**, *16*, 301-315
- [2] Jakimiuk, K.; Strawa, J.; Granica, S. et al. *T20 PSE Conference Liverpool 2020*, **2020**, 57