



79<sup>th</sup>



International  
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# Quantification of isoflavones aglycones in the late harvest aerial parts of *Trifolium pratense* L. using different hydrolysis methods

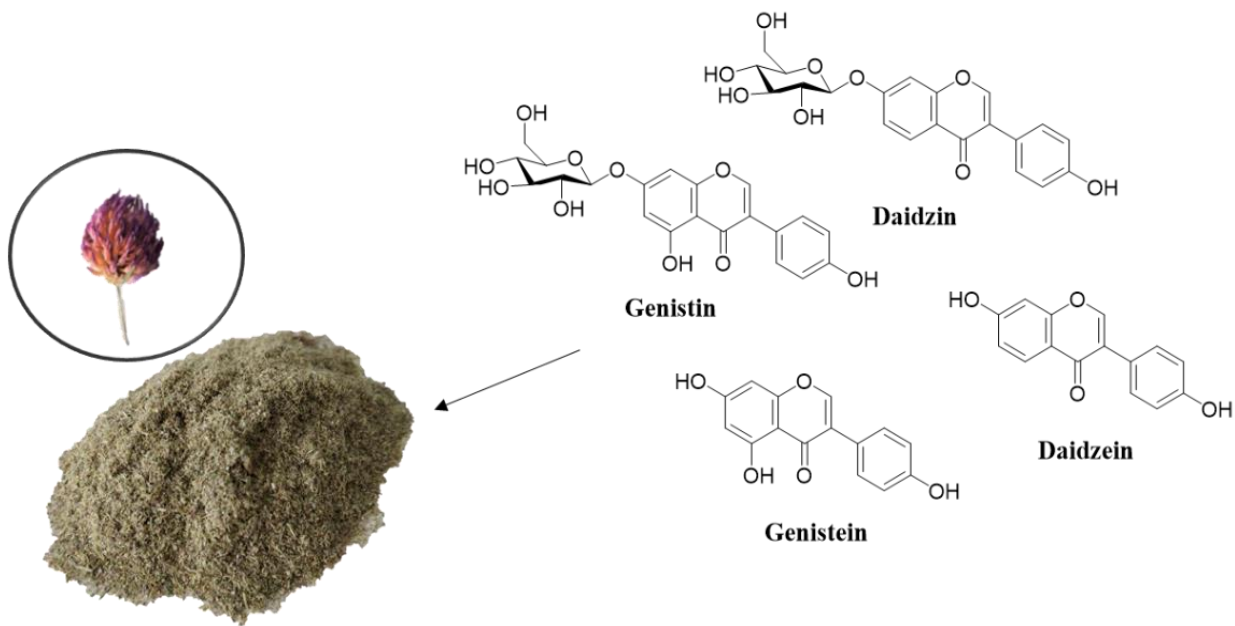
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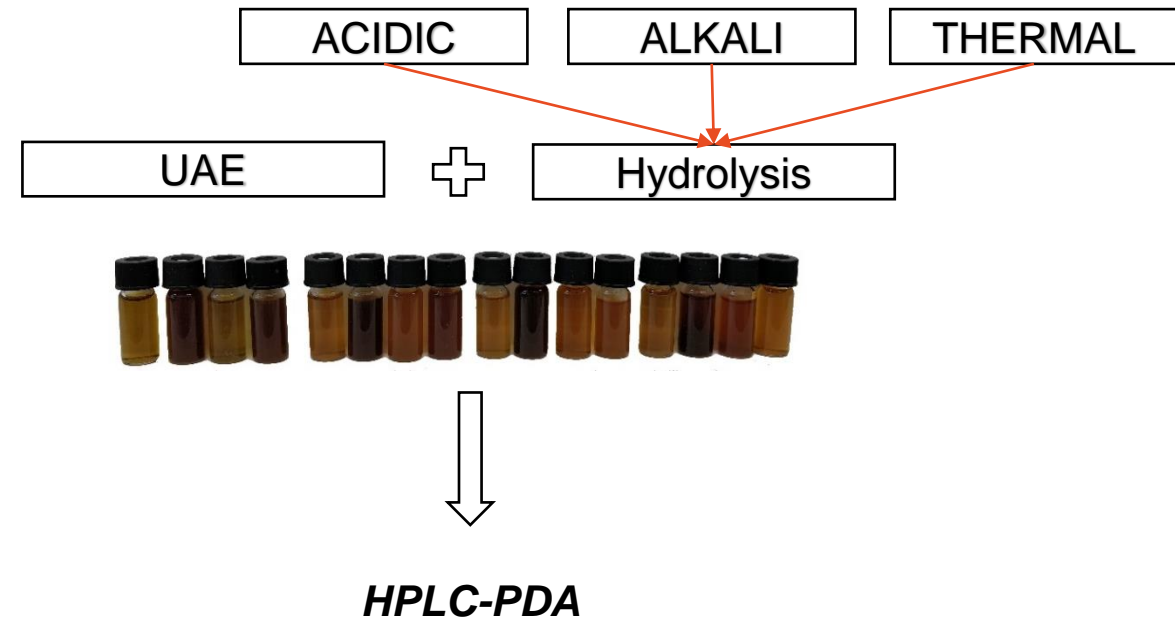
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**Aim:** The aim of this study was to obtain the highest possible amounts of isoflavones genistein and daidzein from *Trifolium pratense* L. blossoms using different hydrolysis methods.

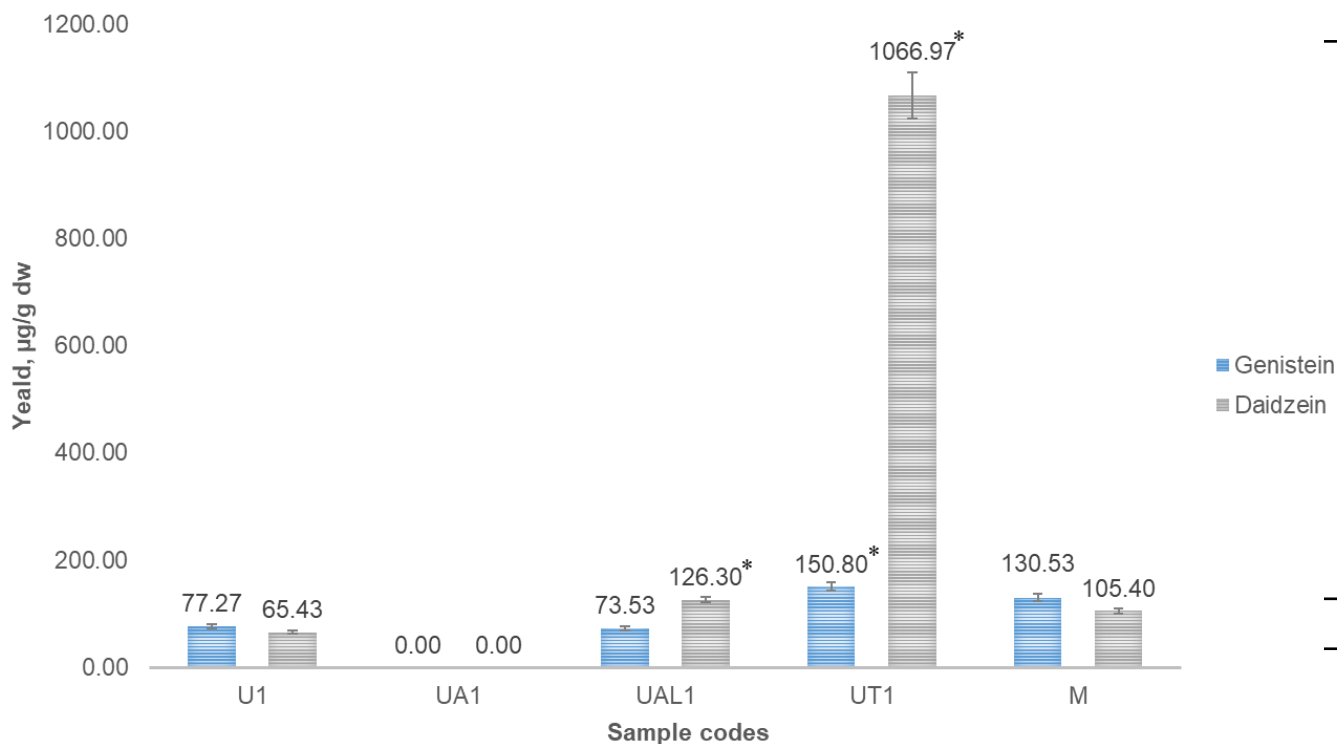


**Figure 1.** Milled red clover and isoflavones found in its extracts



**Figure 2.** Simplified methods scheme

# RESULTS (1)



**Figure 3.** Isoflavones aglycones yield in samples processed for 10 minutes. Samples were compared with control (M) <sup>a</sup>  $p < 0,05$ .

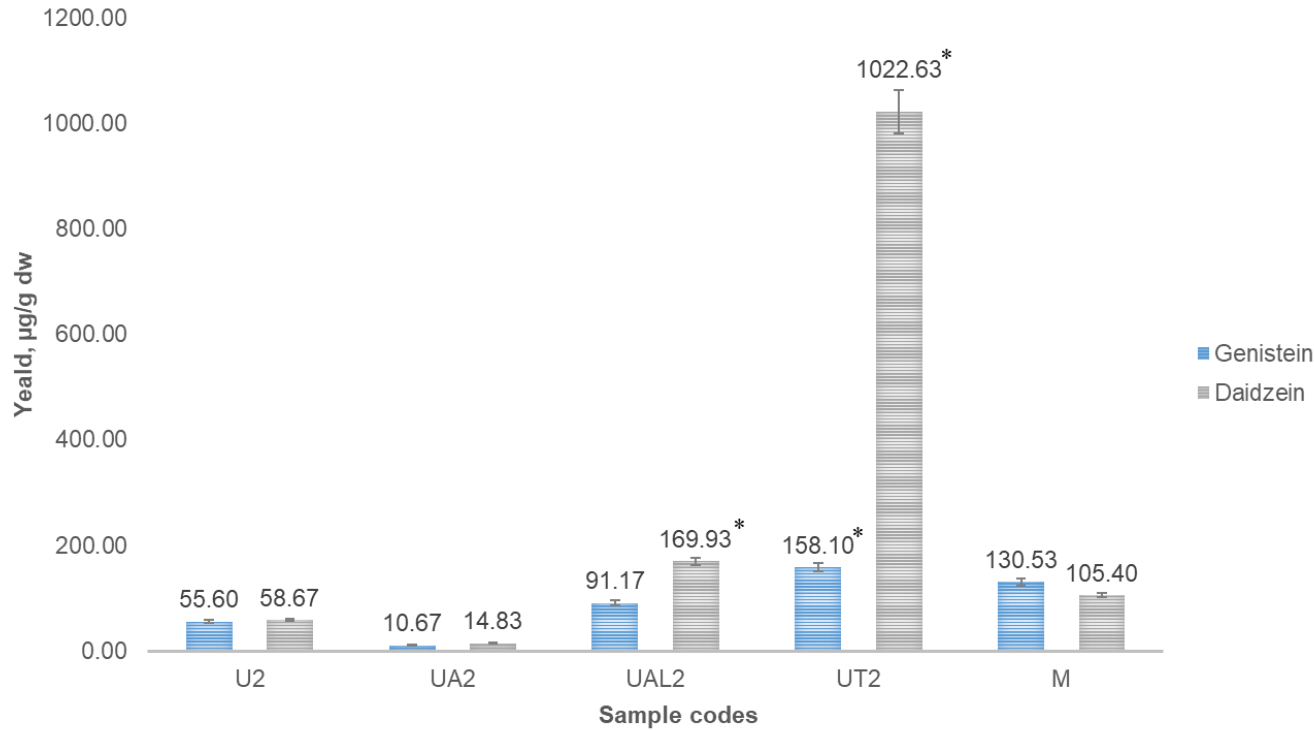
**Table 1.** Isoflavones glycosides yield in samples processed for 10 minutes.

	Genistin	Daidzin
<b>U1</b>	85.33 ± 2.62	0.00 ± 0.00
<b>UA1</b>	0.00 ± 0.00	221.37 ± 8.85
<b>UAL1</b>	134.60 ± 5.38	0.00 ± 0.00
<b>UT1</b>	194.90 ± 7.80	0.00 ± 0.00
<b>M</b>	95.40 ± 3.8	0.00 ± 0.00

**Table 2.** Samples preparation conditions

Sample code	Conditions	Hydrolysis
U1	UAE, 40 °C, 10 min	-
UA1		Acidic
UAL1		Alkali
UT1	MAE, 40 °C	Thermal
M		-

# RESULTS (2)



**Figure 4.** Isoflavones aglycones yield in samples processed for 30 minutes. Samples were compared with control (M) <sup>a</sup>  $p < 0,05$ .

**Table 3.** Isoflavones glycosides yield in samples processed for 30 minutes.

	Genistin	Daidzin
<b>U2</b>	105.43 ± 4.2	0.00 ± 0.00
<b>UA2</b>	0.00 ± 0.00	94.37 ± 3.8
<b>UAL2</b>	135.67 ± 5.4	0.00 ± 0.00
<b>UT2</b>	210.27 ± 8.4	0.00 ± 0.00
<b>M</b>	95.40 ± 3.8	0.00 ± 0.00

**Table 4.** Samples preparation conditions

Sample code	Conditions	Hydrolysis
U2	UAE, 40 °C, 30 min	-
UA2		Acidic
UAL2		Alkali
UT2		Thermal
M	MAE, 40 °C	-

# Conclusions

- Most isoflavones were detected in the sample, which was sonicated for 10 minutes, and hydrolysis was performed by heating (UT1);
- No isoflavone was detected in the sample, which was sonicated for 10 minutes and hydrolysed with acid (UA1);
- Extending ultrasound processing time from 10 to 30 minutes isoflavones aglycones concentrations in extracts increase.

