Phenolic profile of petals decoct from new genotypes of garden rose grown in Vojvodina

Fenolni profil dekokta latica novih genotipova baštenskih ruža gajenih u Vojvodini

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Introduction

Garden roses are cultivated across the world and are used for the isolation of essential oil [1]. After the isolation of essential oil by hydrodistillation, decoct stays as a byproduct. This study aimed to evaluate the potential of decoct as a source of pharmacologically active compounds and reduce waste during rose essential oil production.

Results

Compound (mg/g dw)	Rose 3	Rose 8	Rose 10
p-OH benzoic acid	0.067^{a}	0.006^{b}	0.012^{b}
Protocatechuic acid	**0.418^{b}**	**4.362^{a}**	0.087^{c}
Vanillic acid	0.009	<0.005*	/**
Gallic acid	**43.63^{c}**	**146.2^{b}**	**203.6^{a}**
Syringic acid	<0.010	<0.010	<0.010
Sinapic acid	0.027	<0.010	<0.010
p-Coumaric acid	0.032^{a}	0.006^{b}	0.004^{b}
o-Coumaric acid	/	/	<0.001
Caffeic acid	0.003	<0.002	<0.002
Ferulic acid	0.004	<0.002	<0.002
Chlorogenic acid	0.010^{a}	<0.005	0.009^{a}
Umbelliferone	<0.001	/	/
Scopoletin	<0.001	<0.001	<0.001
Quercetin	**0.112^{c}**	**0.144^{b}**	**0.251^{a}**
Hyperosid + Isoquercitrin	**4.785^{b}**	**1.549^{c}**	**9.079^{a}**
Rutin	**0.190^{b}**	**0.246^{b}**	**1.606^{a}**
Quercitrin	**1.208^{b}**	**2.050^{b}**	**10.11^{a}**
Kaempferol	**1.089^{a}**	0.018^{c}	**0.131^{b}**
Kaempferol-3-O-Glc	**44.29^{a}**	**0.314^{c}**	**13.65^{b}**
Catechin	**0.204^{a}**	**0.141^{b}**	0.024^{c}
Naringenin	0.003^{a}	0.003^{a}	0.001^{b}
Isorhamnetin	<0.005	/	<0.005
Apigenin	<0.001	<0.001	<0.001
Apigenin-7-O-Glc	<0.001	<0.001	<0.001
Vitexin	<0.002	<0.002	<0.002
Baicalein	<0.039	/	<0.039
Luteolin	<0.002	<0.002	<0.002
Luteolin-7-O-Glc	/	<0.002	/
Chrysoeriol	<0.0003	<0.0003	0.001
Epigallocatechin-gallate	<0.039	<0.039	<0.039
Apiin	<0.001	<0.001	<0.001
Amenthoflavon	<0.001	<0.001	<0.001
Quinic acid	**25.23^{c}**	**83.91^{a}**	**63.41^{b}**

*beneath LOQ
**beneath instruments LOD
Letters a-c signify the difference between results (p<0.05)

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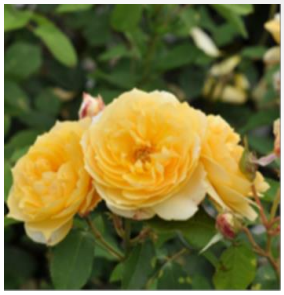
References

1. B. Božanić Tanjga, et al., *Horticulturae*. **2022**, *8*, 895.
2. D. Orčić, et al., *Food Chem*. **2014**, *143*, 48-53.

Materials and methods

Decocts obtained after the isolation of essential oils from petals of 3 new genotypes of garden roses grown in Vojvodina were selected and their chemical composition was determined by the LC-MS-MS [2].



Rose 3

Rose 10

Rose 8

Conclusions

- Out of 45 analyzed compounds, 36 were present in petals decocts
- Decocts are a good source of gallic acid, especially rose 10
- Quinic acid is also present in high amounts in decocts, with the highest content detected in rose 8
- Rose petals decocts are rich in flavonoid glycosides, such as kaempferol-3-*O*-Glc, quercitrin, hyperosid, isoquercitrin and rutin
- Decoct of rose petals is a rich source of phenolics and could be a source of biologically active compounds for the cosmetic industry and their usages could contribute to the reduction of industrial waste