Antioxidant activity and polyphenolic content in Tokaj Vitis vinifera L. parts and produced wine

Ľudmila Balážová1, Ľudmila Vaľovská1, Zuzana Eftimová1, Jarmila Eftimová1
1 Department of Pharmacognosy and Botany, University of Veterinary Medicine and Pharmacy in Košice, Slovakia
2 Slovak University of Agriculture in Nitra, Slovakia
{ludmila.balazova@uvlf.sk}

Introduction

Tokaj is the region in the southeastern Slovakia and also in northern Hungary where three types of wine are registered, namely Furmint, Lipovina and Muskat štyr. From those wines, Tokajské pušmne is produced by a special vinification technology based on a noble rot Botrytis cinerea, which presents a positive impact on the quality of certain wines. Tokajské pušmne is made by adding specific amounts (so-called pušma) 20-25 kg of botrytized grapes to a known amount (so-called „gőráy“ barrel) 136 l of Tokaj wine. Three, four, five or six pušmne is added to dry Tokaj wine in a Góráy oak barrel and it is mixed and scaled for two days. „Esencia“ is the first run juice of the botrytized grapes which leaks from the press under their own weight.

Materials

Muskat štyr, Furmint, Lipovina

Methods

Crushing → Maceration → Filtration → Adjustment → Measurement

Total polyphenols
Reagent: Folin-Ciocalteu

Results

Vitis vinifera L.

The significant correlation was found between the total content of polyphenols and the antioxidant activity of wine and tested parts of vine grape. Out of the extracts of all parts of the grape, the highest concentration of polyphenols was found in the extracts of leaves.

Relative activity of Tokaj wines

Further results have shown that the 6-, 5- and 4- pušmne wines comprise more polyphenols than the non-botrytized wine. The results of both methods for the determination of antioxidant activity were similar. Moreover, they were in correlation with the results of the polyphenolic content.

Conclusion

Our investigation has clearly shown that Tokaj wines and leaves of Vitis vinifera are a great source of polyphenolic compounds and other species with high antioxidant capacity. This study further supports the fact that the consumption of wine in small amount seems to be beneficial for human health.

References

Acknowledgement

This work was supported by the Slovak Research and Development Agency (APVV-15-0177).