

HPLC Analysis of Sugars and Sorbitol in Traditional Rose Petal Beverages

Nora Limani Bektashi^{1,4},

Drita Abazi¹, Zimere Saiti Musliji¹, Sara Jahiji², Mimoza Rahovica², Arianit A. Reka^{3,4}

¹Department of Food Technology, Faculty of Technological Sciences, "Mother Teresa" University, Mirche Acev 4, 1000 Skopje, Republic of North Macedonia

²Center for public health, 11 October, 1300, Kumanovo, Republic of North Macedonia

³Faculty of Natural Sciences and Mathematic, University of Tetovo, Str. Ilinden, nn., Tetovo, Republic of North Macedonia

⁴NanoAlb, Albanian Unit of Nanoscience and Nanotechnology, Academy of Sciences of Albania, Fan Noli square, 1000 Tirana, Albania

nora.limani@unt.edu.mk

Abstract

Homemade rose petal concentrates represent a traditional product with potential nutritional and functional value. The present study aims to evaluate the carbohydrate profile of three variations of rose petal concentrates: (1) concentrate prepared with petals and lemon juice, (2) concentrate prepared with petals without lemon juice, and (3) diluted beverage form prepared with petals, lemon juice, added water, and reduced sugar, ready for consumption as a refreshing drink. All three samples will be analyzed for glucose, fructose, sucrose, and sorbitol content using high-performance liquid chromatography (HPLC). The planned analysis is expected to provide insights into the influence of formulation (presence of lemon juice, dilution, and added sugar) on the sugar and polyol composition of rose petal beverages. These findings will contribute to better understanding of the nutritional quality and potential health aspects of homemade rose-based drinks, as well as their optimization for consumer use.

Keywords: Rose petal concentrate, HPLC analysis, carbohydrate composition, sorbitol, homemade beverages

References

- [1] Norikoshi, R., Imanishi, H., & Ichimura, K. (2008). A simple and rapid extraction method of carbohydrates from petals or sepals of four floricultural plants for determination of their content. *Journal of the Japanese Society for Horticultural Science*, 77(3), 289–295. <https://www.jstage.jst.go.jp/browse/jjshs1>
- [2] Filip, M., Vlassa, M., Coman, V., Halmagyi, A., & Copolovici, L. (2016). Simultaneous determination of glucose, fructose, sucrose and sorbitol in the leaf and fruit peel of different apple cultivars by the HPLC–RI optimized method. *Food Chemistry*, 199, 653–659. <https://doi.org/10.1016/j.foodchem.2015.12.062>
- [3] Ma, C., Sun, Z., Chen, C., Zhang, L., Zhu, S., & Xu, N. (2014). Simultaneous separation and determination of fructose, sorbitol, glucose and sucrose in fruits by HPLC–ELSD. *Food Chemistry*, 145, 784–789. <https://doi.org/10.1016/j.foodchem.2013.08.138>