APPLIED RESEARCH REGARDING THE CONTENT OF POLYPHENOLS IN CHERRIES

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Abstract. This applied research focuses on identifying the content of polyphenols in cherry varieties available on the Cluj-Napoca market. 3 sweet cherry varieties of *Prunus avium* L. three where taken into analysis for the determination of total polyphenols. The method used for the determination of total polyphenols is Folin-Ciocalteu. Average values obtained for the 3 cherries varieties are: 81 mg GAE/100 g FW for Stella, 43,7 mg GAE/100 g FW for Napoleon/Bigarreau and 83,7 mg GAE/100 g FW for Lapins.

Keywords: polyphenols, Gallic acid, cherry.

INTRODUCTION

The purpose of the study is the evaluation of the total polyphenols content in cherry varieties available on the Cluj-Napoca market. Several early researches have revealed the fact that cherries have a high content of polyphenols and thus are a very good source for antioxidants. Further studies showed that this implies antidiabetic, immune modulating, antimicrobial and anticancer properties.

MATERIALS AND METHODS

Samples and samples preparation

9 samples of 3 sweet cherry varieties of *Prunus avium* L. three where taken into analysis. The varieties were chosen base on their availability on the Cluj-Napoca market. 3 cherry varieties are: Stella, Napoleon/Bigarreau and Lapins. Table 1 present the distribution of the samples.

Table 1

Samples taken into analysis

No.	Cherry varieties	Samples names	Characterization of the fruit
1.	Stella	Sample 1	- large dark red - sweet cherry - heart shape
2.		Sample 2	
3.		Sample 3	
4.	Napoleon/Bigarreau	Sample 1	- large yellow fruits - deep red flush - sweet cherry
5.		Sample 2	
6.		Sample 3	
7.		Sample 4	
8.	Lapins	Sample 1	- dark red - sweet cherry
9.		Sample 2	- large - firm

The extraction was done using a mixture of methanol and water (50/50). 50 g of minced fresh cherries without seeds where extracted with 100 ml extraction solution on the ultrasonic bath for 20 minutes.

Reagents and standards. Reagents of the highest quality where used and distilled water. Folin-Ciocalteu, Gallic acid, sodium carbonate ≥ 98 %, and methanol where purchase from Merck.

Method. The concentration of total phenols was determined using the Folin-Ciocalteu colorimetric method (5). 0,5 ml of sample, was pipette in a 10 ml volumetric flask, which contained 0,5 ml Folin-Ciocalteu solution, 5 ml ultra-pure water and 1,5 ml sodium carbonate solution (20%), the flask was filled up to the mark with ultrapure water. The volumetric flasks samples were left 90 de minutes and where then measure at 765 nm using the Spectrophotometer. Standard Gallic acid within the 100–500 mg/L concentration range was used to construct a calibration curve. Results are expressed as mg Gallic acid equivalent/100 g of fresh weight fruit (mg GAE/100 g FW). Samples were assayed in triplicate and values were averaged.

RESULTS

Result obtained for the analysis of total polyphenols in *Prunus avium* are presented in table 2. Total polyphenols concentration range from 40,6 – 86,9 mg GAE/100 g FW. The highest concentration was obtained for Sample 3 Stella 86,9 mg GAE/100 g FW and the lowest concentration was obtained for Sample 3 Napoleon/Bigarreau 40,6 mg GAE/100 g FW. The results obtained are comparable to the results obtained by Gianluca & Co 2016 (6). Average values obtained for the 3 cherries varieties 81 mg GAE/100 g FW for Stella, 43,7 mg GAE/100 g FW for Napoleon/Bigarreau and 83,7 mg GAE/100 g FW for Lapins (Fig. 1).

Table 2

Total polyphenols content

No.	Cherry varieties	Samples names	Results mg GAE/100 g FW
1.	Stella	Sample 1	75,6
2.		Sample 2	80,4
3.		Sample 3	86,9
4.	Napoleon/Bigarreau	Sample 1	45,2
5.		Sample 2	46,5
6.		Sample 3	40,6
7.		Sample 4	42,5
8.	Lapins	Sample 1	80,8
9.		Sample 2	86,5

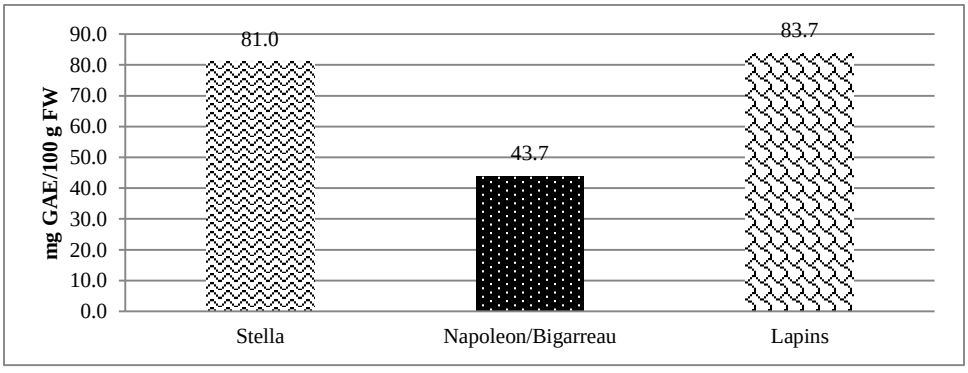

Fig. 1 Average values obtained for the 3 cherries varieties

CONCLUSIONS

- Cheery have a high content of polyphenols on thus are a very good source for antioxidants;
- The varieties that have dark red color had the highest content of total polyphenols, Lapins and Stella, with an average of 83,7 mg GAE/100 g FW and 81 mg GAE/100 g. This is due to the anthocyanin pigments found in red color fruits.

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