

ANTIOXIDANT CAPACITY OF FRUIT TEAS

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1. Introduction

Tea is one of the most consumed beverages in the world. It is an important source of biologically active compounds. We consume fruit teas for flavor and pleasant taste, although we are not sick. It influences us positively through its antioxidant capacity. Antioxidants are substances that can limit the amount of free radicals in the body and their deleterious effects on it. They neutralize damaging free radicals and fight against free radicals to prevent cell damage and to maintain health [1]. The aim of the present study was the investigation of some commercial fruit teas and evaluation of their antioxidant capacity.

2. Experimental Setup

Sample preparation: Research has been done on 8 commercially available teas, chosen from the most commonly found on the market: 6 fruit tea samples, 1 green tea sample and 1 black tea sample. Teas were prepared as indicated by producer. Each sample was prepared in three replicates.

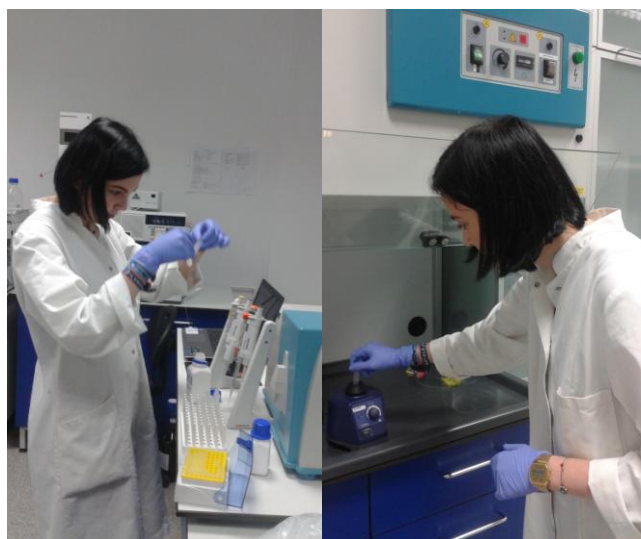


Figure 1 - The analysis took place at the "Research institute for analytical instrumentation" in Cluj-Napoca

Method: The antioxidant capacity was determined using a PHOTOCHEM analyzer, Analytik Jena Germany. It uses the photochemiluminescence (PCL) method. The method combines the very fast photochemical radical generation with the highly sensitive luminometric detection which serves for the determination of water-soluble antioxidant capacity (ACW) [2]. ACW antioxidants were determined using the ACW Kit supplied by the Jena AG Company. (fig. 1). The results were expressed in mg/ml AAE ascorbic acid equivalents using a calibration curve of the standard (ascorbic acid).

3. Results

Values obtained from the analysis of the teas varied between 0.78 and 3.99 mg / ml ascorbic acid. (fig. 2)

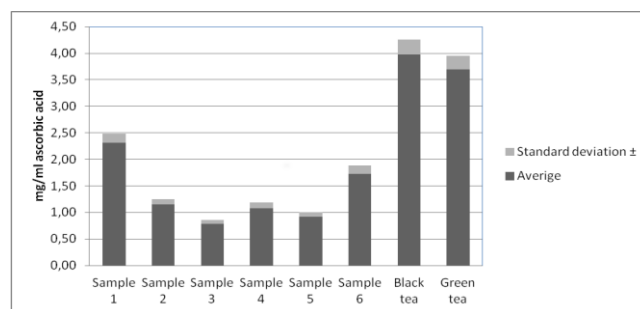


Figure 2 - The antioxidant capacity values for fruit tea and black, green tea

Analysis of the obtained results showed values between 0.78 and 2.31 mg / ml ascorbic acid equivalents for fruit teas. The highest value was recorded for sample 1, indicated as Raspberry & Wild – Strawberry Tea, although it contains a small percentage of raspberry and strawberry. It contains Hibiscus flower, apple, rose hip, natural flavors, raspberries (1%), wild strawberries 0.5%. The lowest value was recorded for sample 3, the Blackberries Tea. It contains Orange peel 22%, 11%, hibiscus flower, roasted chicory root, blackberry, apple, chamomile, liquorice 5%, ginger 4%. The antioxidant capacity of the sample No. 5 was relatively low, as we expected to present a higher antioxidant capacity due to its composition, aronia fruits being well known for their high content of antioxidant compounds, but the quality of the ingredients depends on the producer.

4. Conclusion

Antioxidant activity was higher for tea containing hibiscus and rose hip. Sample No. 6 presented the 2nd highest value of the antioxidant capacity. It is labeled as a bio tea, containing 35% Hibiscus, apple, rose hip. Although the antioxidant activity of fruit teas was lower than that of green and black tea, they are still an important source of antioxidant. Fruit teas are recommended for people with gastric sensitivity, children and elders and are available in cold weather.

5. References

- [1] Fereidoon Shahid, Ying Zhon, Measurement of antioxidant activity, Journal of Functional Foods, 2015
- [2] Nekvapil T., & all, Decrease in the Antioxidant Capacity in Beverages Containing Tea Extracts during Storage, The Scientific World Journal, Volume 2012 (2012), Article ID 361698, 5 pages