Physicochemical Characteristic of Malt Vinegar with Spices

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ABSTRACT
The malt vinegar is very popular in England, being prepared from barley malt using a method resembling to the one used to produce the wine vinegar. It has a strong taste and a medium acidity. Regarding the fact that it is not very common in Romania, the aim of the study was flavouring the malt vinegar with seasoning plants for a high concentration of antioxidants, flavour and also for making it more popular amongst consumers. Two types of flavoured malt vinegar were obtained, one of them with turmeric and the other one with rosemary, pepper and grain mustard. In order to characterize the new products, several physicochemical analyses were conducted (antioxidant capacity, total extract and acidity).

Keywords: malt vinegar, DPPH, spices.

INTRODUCTION
Vinegar is a consumable liquid, which has formed part of human food since the very remote past, also, inegar is a common condiment used in many international cuisines. Generally, vinegar can be divided into three groups; distilled vinegar, wine vinegar or brew vinegar and artificial vinegar (Pinsirodom et al., 2010). Malt is obtained from barley grains, being used in the production of alcoholic drinks (beer, whisky, gin, and vodka), malt vinegar, in some sweets and confectionery, and as a carrier for vitamin-rich cod-liver oil (Ferrerés et al., 2009).

The malt vinegar is very popular in England, being prepared from barley malt using a method resembling to the one used to produce the wine vinegar. It has a strong taste and a medium acidity and is used principally as a dressing for salads, and for pickling some meats and vegetables. Presently there is a growing interest in the production and marketing of food products with addition of spices. These products belong to foodstuffs with high nutritional value. Herbs and spices support nutrient diversity by encouraging new food choices (Salanță et al., 2014).

AIMS AND OBJECTIVES
Regarding the fact that malt vinegar is not very common in Romania, the aim of the study was flavouring the malt vinegar with seasoning plants to improve the organoleptical and chemical properties, and for making it more popular amongst consumers.

MATERIALS AND METHODS
The spices were obtained from a local supermarket. Two types of flavoured malt vinegar were obtained. Malt vinegar amortization with spicy plants: Mixture I: 2 g turmeric; Mixture II: 0.5 g rosemary, 2 g pepper, 1 g grain mustard; 250 ml malt vinegar is mixedtured with each plant mixture. It is stored in glass at 4-10°C. The malt vinegar with spices was compared to common malt vinegar. The antioxidant capacity of samples was assessed
through the evaluation of free radical scavenging effect on 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical (Odriozola-Serrano, et al., 2008). Shortly, 10 ml of samples were extracted with 10 ml of methanol solution. Aliquots of methanolic extracts were mixed with methanolic DPPH solution. After 30 minutes incubation in darkness, the absorbance of each sample was measured on a Shimadzu UV-1700 PharmaSpec spectrophotometer at 515nm against a blank of methanol. Results were expressed as the percentage of decrease in the absorbance value of each sample compared with the absorbance of DPPH reference solution. In order to characterize the new products, total extract and acidity were determined according to Tofană and Mureşan (2012) and to the standard AOAC methods.

RESULTS AND DISCUSSION

The values for total acidity determined for the vinegars in this study were within the ranges from 4.3 % to 4.7 %. The total acidity is lower than 4.7 %, this meaning that doesn't affecting the stomach or intestinal lining. Although, acetic acid is the principal ingredient of vinegar, the total acidity is not a fundamental element for characterising vinegars (Durán et al., 2014). Total extract varied from 0.83 % to 1,3 %. The levels of physicochemical properties of vinegar made from malt with spices were within the normal range. The malt vinegar with spices (7.73 %-8.30 %) possessed a higher antioxidant capacity compared to malt vinegar (6,15%). The explanation is that the spices added for flavouring have increased the antioxidant capacity. The results showed that the colour, taste, smell and aspect of malt vinegar that was flavoured with spicy plants is substantial modified by flavouring.

CONCLUSION

The results of this paper show that, the flavouring with spices is a very good method for improve of organoleptical features and for increasing of antioxidant capacity of malt vinegar. The physicochemical characteristics of malt vinegar flavored with spicy plants were not significantly modified, but were observed important changes in organoleptic characteristics, in specially the taste and smell.

REFERENCES