

ACRYLAMIDE IN COFFEE PRODUCTS FROM SERBIAN MARKET

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Background: Acrylamide is a compound that is mainly formed in food rich in carbohydrates, during the Maillard reaction between the amino acid asparagine and reducing sugars, at temperatures above 120 °C and at low humidity.

Methods and Objectives: The aim of this study was to examine the amount of acrylamide in coffee products, the use of which has a long tradition in these regions, and to determine whether it corresponds to the reference values (roasted coffee: max 400 µg/kg, instant coffee: 850 µg/kg). The content of acrylamide was determined in 30 samples of roasted coffee and 9 samples of instant coffee, purchased in markets in the territory of the city of Belgrade. An LC-MS/MS system was used, on a column: Thermo, Part. No. 35005-052130, Dim. 50 x 2.1 mm particle size 5.

Results: The concentration of acrylamide in instant coffee ranged from 314 to 830 µg/kg, and only in one sample was it lower than half of the maximum level of the reference value. In the mixture of ground roasted coffee, the obtained value for acrylamide was 194-464 µg/kg. In 93% of the samples of the ground roasted coffee mixture, the results obtained were below the maximum level of the reference value, and only in two samples the experimentally determined value for acrylamide was lower than half of the defined maximum level of the reference value.

Conclusions: The amount of acrylamide in the examined samples of instant coffee and the mixture of ground roasted coffee, although it met the conditions of defined reference values in 95% of the examined samples, is very high. Knowing the tradition of coffee consumption in these areas, it is necessary to improve existing and develop new technological formulations, so that these products contain a smaller amount of acrylamide

Keywords: acrylamide, coffee, instant coffee, LC-MS/MS