Acrylamide Mitigation in Bakery Products

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INTRODUCTION

Acrylamide is a carcinogenic substance for animals and to humans. The harmful effect of such compound was later confirmed, and recently the acrylamide was considered a neurotoxic and genotoxic substance1. This contaminant has been found in processed food result of Maillard reaction2. There are many studies regarding several mitigation strategies, however it is need to change the manufacturing processes3.

RESULTS AND DISCUSSION

From figure 1, the ham and cheese rolling and “trouxa filo” had the highest amount of acrylamide, 3743 μg/kg and 3862 μg/kg, respectively. The results also showed that caramel cookies, butter cookies, Greek cookies and cocoa cookies do not exceed the EFSA indicative value (500 μg/kg)4.

Pie samples (686-1084 μg/kg), god’s bread (995 μg/kg), pastels (527-809 μg/kg) and muffins (676-1057μg/kg) contain high levels of acrylamide when compared to the values found in the literature for bakery products, 198 μg/kg2.

Given the obtained results, tests were carried out in order to reduce the concentration of acrylamide. A bakery product was prepared to which four different reducing agents (A, B, C and D) were individually added. The effect of each agent on acrylamide formation was evaluated.

CONCLUSIONS

In this study was demonstrated that the bakery group had achieved high values of acrylamide, highlighting “trouxa filo” and ham and cheese rolling.

However, further studies are necessary in order to achieve a higher percentage of reduction of acrylamide. Progress studies are ongoing with other reducing agents and flours.

REFERENCES


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