	Amino acids determination in crème cheese for the identification of added protein hydrolysate	<i>Durchführung</i> <i>Dr. Detlef Timmermann</i> <i>Otto Reichwald</i> <i>Raoul Kafka</i>	Versuchs-Nr. TRK-0814_2
		Dokumenten-Code	<i>Ausdruck</i> 12.09.14

1. Introduction

3 samples of crème cheese from a supermarket were analyzed for the amino acid concentrations from the NPN for the identification of added protein hydrolysate.

2. Materials and Methods

2.1. Sample preparation


Exactly 5 g of the sample were weighted into plastic cups, 30 ml ultrapure water and 5 ml ultrapure water with internal standard (Norleucine) were added. Everything was homogenized with an Ultra Turrex in intervals of 30 sec. Afterwards 10 ml 10 % sulfosalicylic acid were added and deposit for 20 min. in a refrigerator, finally filtered through a micro filter.

2.2. Hydrolysis with CEM Discover microwave system

500 µl of the filtrate was pipetted in a glass vial (1,5 ml volume), put into the vessel body with 7,5 ml 6N HCL. The hydrolysis vessel was put inside the microwave system, hydrolyze at 150° C for 17,5 min. At the end of the reaction the hydrolysis vessel was let cool down, the sample was dried in a block heater. 1 ml sample dilution buffer was added to the dry samples to get dissolved for analyzing and filtered using a membrane filter (MembraSpin, 0,22 µm).

3. Amino acid analysis

For determination of amino acids the Amino Acid Analyzer Aracus from MembraPure was used. The methods for amino acid analysis are based on ionchromatographic separation of the amino acids.

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4. Results

Table 1 shows the amino acid concentration of hydrolyzed NPN from crème cheese. In sample 1 the amino acid concentrations are increase in comparison to the results from the Sample 2 and sample 3. The producer of the crème cheese (sample 1) added gelatin into the crème cheese during the production. The gelatin is declared in the list of ingredients on the package.

Table 1:

Amino acid concentration of hydrolyzed NPN in
mg / 100 g crème cheese

Amino acid	Sample 1	Sample 2	Sample 3
Asp	60,8	10,8	12,9
Thr	34,3	8,6	10,1
Ser	41,5	12,0	8,5
Glu	160,4	14,1	33,2
Gly	66,7	4,4	3,2
Ala	44,6	6,2	6,9
Val	35,3	5,9	6,8
Met	13,8	3,7	3,3
Ile	27,9	5,9	7,3
Leu	54,2	7,5	3,3
Tyr	14,8	4,3	3,5
Phe	19,8	3,5	2,6
His	18,6	3,9	3,3
Hylys	2,7	n.n.	n.n.
Lys	51,9	9,5	8,8
Arg	35,2	2,9	1,8
Hypro	25,5	6,4	3,4
Pro	92,5	17,9	19,8

5. Conclusion

An addition of animal protein hydrolysate (gelatin) increases the amino acid concentrations of hydrolyzed NPN. Especially telling are the level of the amino acids hydroxyproline and hydroxylysine. They are markers for added gelatin in the crème cheese. When using gelatin in crème cheese a declaration in the list of ingredients is mandatory in any case.