Note

Variations of hydrosoluble vitamin contents in dairy products during storage

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Summary — Thiamine and riboflavin contents of 3 dairy products were determined: yoghurt, liquid yoghurt and fresh cheese. These vitamins were analysed in each group according to 3 reference points: i), when the product was distributed to the retailer; ii), after 7 days had elapsed; iii), on the latest consumption date. The results show that these dairy products contribute adequate quantities of thiamine and riboflavin to the diet. With respect to vitamin B1, it was observed that the losses occurring during storage are negligible; this is not the case, however, as regards vitamin B2.

yoghurt / fresh cheese / thiamine / riboflavin

INTRODUCTION

It is increasingly important to have detailed knowledge of the different foods that we consume each day, in order to help us to establish a balanced diet. For this reason, in this study we have examined the contribution of water-soluble vitamins B1 and B2 in dairy products, and particularly in natural yoghurts (Y), liquid yoghurts (L) and fresh cheese (Petit Suisse) (P). These products are frequently present in our normal diet; and, particularly in the case of children, from a very early age.

The vitamin value of these products is different from that of milk, particularly in the case of water-soluble vitamins since some of these vitamins are lost when the whey is removed and others are consumed by lactic bacteria.

As indicated above, we were interested in determining the proportion of vita-
The riboflavin content was determined by direct fluorescence following oxidation with potassium permanganate (AOAC, 1990).

**Statistical analysis**

Data for each dairy product were submitted to variance analysis, the day of storage as studied factor, batch of sample being considered as block.

**RESULTS AND DISCUSSION**

Figure 1 represents in graph form the mean values of vitamins B₁ and B₂ at the 3 control points established for each of the products.

It may be seen that the vitamin B₁ content is very similar in all 3 types of product, with figures ranging from 0.040–0.060 mg/100 g of product.

The vitamin B₂ content is higher than the thiamine content in all the samples analysed, with the greatest difference being found in natural yoghurts, with figures

![Graph showing vitamin B1 and B2 contents over time](image-url)

**Fig 1. Changes in vitamin B₁ and B₂ contents of natural yoghurt, liquid yoghurt and Petit suisse. Variations de la teneur en vitamines hydrosolubles des produits laitiers durant le stockage.**
Vitamin B in yoghurt and fresh cheese

ranging from 0.198–0.275 mg/100 g of product, followed by liquid yoghurt with similar levels, between 0.180–0.193 mg/100 g of product, and finally Petit Suisse, with figures ranging from 0.141 to 0.172 mg/100 g of product.

The Petit Suisse reflects the largest decrease in vitamin B2 content and less in the case of vitamin B1 in comparison with the other products. This is a logical conclusion, since during the manufacturing process of this fresh cheese, part of the whey is removed, with the consequent partial loss of these nutrients.

Following consultation of the bibliography on this subject, we have found only one study (Favier, 1987) in which the thiamine and riboflavin content in natural yoghurts had been quantified, with figures of 0.04 and 0.18 mg/100 g of product, respectively, being obtained. These values are slightly lower than those of 0.056 and 0.277 mg/100 g of product established in our study.

We have also mentioned the Souci tables (1986/1987) and have seen that in the case of the samples of natural yoghurt analysed, with 3.5% fat content the figures range from 0.03–0.06 mg% for thiamine and from 0.14–0.24 mg% for riboflavin. Our values are between those indicated for both micronutrients.

In these same tables, the Petit Suisse, with a 50% fat content, records levels of 0.047–0.087 and 0.220–0.410 for vitamins B1 and B2 respectively. In this case, our values are slightly lower than the minimum level indicated in all the samples analysed and for both vitamins.

In order to determine whether or not the losses of vitamins B1 and B2 at 7 and 14 days of refrigerator storage were significant, we statistically processed our data by means of Student Newman–Keuls–Tukey contrast.

CONCLUSIONS

It is concluded that vitamin B1 and vitamin B2 contents in natural yoghurts, liquid yoghurts and Petit Suisse significantly decrease as the date increases. This decrease takes place at all the dates.

Natural yoghurts show significant differences in vitamin B1 contents depending on the samples and on the dates of analysis. The same result occurs in liquid yoghurts and in Petit Suisse.

Vitamin B1 contents in liquid yoghurts are very similar to those in Petit Suisse, and lower than those in natural yoghurts. However, vitamin B2 follows the relationship: natural yoghurts > liquid yoghurts > Petit Suisse.

REFERENCES

