

DETERMINATION OF VITAMIN A IN COW MILK THROUGH HPLC

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Abstract

Absorption spectrum record for vitamin A and absorbency reading at 450 nm was conducted with the help of spectrophotometer. The quantitative analysis of retinol was conducted employing a standard curve of retinol-trans-total solutions (sigma) of concentrations between 10-80 $\mu\text{g/ml}$.

Key words: milk, cow, vitamin A, HPLC

MATERIAL AND METHOD

In order to quantify vitamin A, a volume of 20 cow milk was necessary, which was treated with 5 ml ammonia solutions 25% and 20 ml ethanol 96%. All extractions were conducted at environment temperature.

Vitamin A was analysed after extraction through the HPLC method. For retinol extraction, a mixture of 40 ml ethyl ether was added (containing 0.0025 % BHT) and 40 ml petroleum ether and stirred for 5 minutes.

RESULTS AND DISCUSSIONS

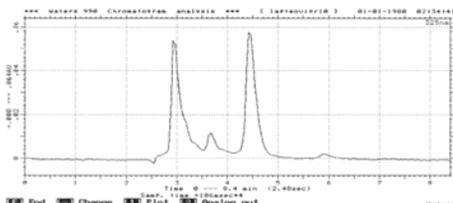


Figure 1.1 HPLC chromatogram for retinol separation in cow milk

In figure 1.1. the separation chromatogram for vitamin A in cow milk is presented, while fig 1.2. represents average values for the retinol content in cow milk. In order to determine vitamin A in cow milk through the HPLC technique, studies conducted by Paul J.M., 2006 are useful, as he employed the same technique in determining retinol and carotenoids in cow milk. Also, in order to identify vitamin A profile, data presented by Paolo, B. et.al (2003) who determined retinol, tocopherols and carotenoids in different dairy products.

CONCLUSIONS

Following determinations on vitamin A from cow milk, it was proven that there are differences according to season, so that: in

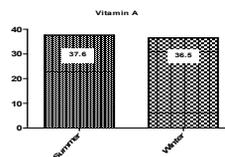


Figure 1.2 Average values for cow milk retinol content

the summer season, the average for vitamin A is 37.6, compared to the winter season when the content is lower, namely 36.5.

REFERENCES

Journal articles

- [1] Paolo, Bergamo, Elena Fedele, L. Iannibelli and G. Marzillo, 2003, Fat-soluble vitamin contents and fatty acid composition in organic and conventional Italian dairy products, *Food Chemistry*, 82, 625-631.
- [2] Paul, J.M., F. Hulshof, R., Tineke, P.V. Bovenkampy, E. Clive, 2006, West Variation in retinol and carotenoid content of milk and milk products in *The Netherlands Journal of Food Composition and Analysis*, 19, 67-75.