

PRESENT STATUS OF SOME VITAMINS IN EGYPTIAN DAIRY PRODUCTS

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ABSTRACT

Samah Mosbah Mohamed El- Sayed, Present status of some Vitamins in Egyptian Dairy Products, Unpublished Ph. D. Thesis, Department of Food Science, Faculty of Agriculture, Ain Shams University, .

Milk and dairy products contain several vitamins that contribute to nutritive values. The levels of vitamins in milk products are affected by several environmental factors and processing conditions. The aim of the present study was to explore the status of vitamins of some milk products in the local market.

Two HPLC methods have been developed. The first was for simultaneous determination of retinol, α -carotene and α -tocopherol and the second for the determination of thiamin (B₁), riboflavin (B₂) and pyridoxine (B₆).

Market samples of whole fat UHT milk, milk powder and processed, Ras, soft cheeses and buffalo milk butter were all characterized by low α -carotene and α -tocopherol, and cheeses contained less retinol (on fat basis) than the other products.

Also, market samples of whole and skim UHT milks, yoghurt, whole milk powder, processed and soft cheeses were analyzed for B₁, B₂ and B₆ vitamins, all UHT samples contained less riboflavin than other products analyzed and B₆ was not detected in UHT milks.

Skim UHT storage at low and room temperatures, revealed significant losses in B₁ and B₂ disappeared after two months of storage and losses in these two vitamins were nearly the same in whole and skim UHT milks, and that losses were slightly higher at room temperature. Riboflavin showed good storage stability in both UHT milks.

Yoghurt was made using probiotic *Bifidobacterium bifidum*, *Lacto bacillus plantarum* or their mixture as adjunct starters. The use of these cultures enhanced the contents of B₁, B₂ and B₆, but measurable decreases occurred in B₁₂ and B₉ vitamins during cold storage, while the riboflavin content increased. At the end of storage period, yoghurt made with the use of the adjunct starter had higher B₁, B₂ and B₆ than the control. The added adjunct cultures had no adverse effect on the composition or organoleptic properties of yoghurt.

Keywords: Thiamin, riboflavin, pyridoxine, HPLC, dairy products, yoghurt, retinol, α -carotene, α -tocopherol, organoleptic properties.

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Sensory properties during storage of control yoghurt and other yoghurt treatments stored at \pm °C for days.

LIST OF ABBREVIATIONS

HPLC	High performance liquid chromatography
µg	Micro gram
µm	Micro meter
-FmTHF	-formyltetrahydrofolate
-MeTHF	-methyltetrahydrofolate
<i>B. longum</i>	<i>Bifidobacterium longum</i>
cfu	Colony forming units
ECM	Energy-corrected milk
GLM	General Linear Model
HDPE	High density polyethylene
IU	International unit
KG	Kefir grains
KOH	Potassium hydroxide
<i>L. bulgaricus</i>	<i>Lactobacillus bulgaricus</i>
LAB	Lactic acid bacteria
LDL	Low density lipoprotein
LOD	Limit of detection
LOQ	Limit of quantification
mg	Milli gram
mL	Milli liter
ng	Nano gram
PAB	Propionic acid bacteria
PC	Polycarbonate
PE	Polyethylene
PET	Polyethylene terephthalate
PUFA	Poly unsaturated fatty acids
RDA	Recommended Dietary Allowance
RSD	Relative standard deviation
<i>S. thermophilus</i>	<i>Streptococcus thermophiles</i>

SE	Standard error
TCA	Trichloro acetic acid
TFA	Trifloro acetic acid
THF	Tetrahydrofolate
TiO	Titanium dioxide
TS	Total solid
UHT	Ultra-high temperature
UV	Ultra-violet