OPPORTUNITY TO INCREASE MILK QUALITY WITH BIOLOGICALLY ACTIVE SUBSTANCES

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INTRODUCTION

To maintain optimum health status cows need to consume a certain quantity of biologically available minerals and vitamins. For cows below an optimum health status supplementation of a biologically available form of a nutrient should produce a positive response. It has been demonstrated that carotenoids and retinol are able to reduce mastitis in dairy cows *(Chew, 1995),* although the effect of β-carotene was not systematic *(Folman et.al., 1987., 1991).* In addition to their role in cow health, higher carotenoid concentrations in milk contribute to an improvement in the nutritional value of dairy products and, possible, higher concentration of antimicrobial proteins and milk fat stability.

Aim of our investigation was to study the impact of carotenoids as feed additives on the udder health and milk quality.

MATERIALS AND METHODS

EXPERIMENTAL DESIGN

Groups	Feed*	Supplements	Content of carotenoids µg kg^{-1}
Control group C N=5	Silage was fed to add libidum; Rapeseeds bran 2kg	Rapeseeds oil 100g	225
Experimental group EI N=5		Rapeseeds oil 100g carrots 7kg	1325
Experimental group E2 N=5		Red palm oil NVRSO 100g **	275

***Amount of feed given per cow per day**
****Carotino Sdn. Bhd, Malaysia**

***The milk samples were collected befor experiment 7, 24, 35 and 42 days after start of feeding and one week after experiment from afternoon milking. Milk samples were immediately cooled to 6-8°.**

Were analysed fat content, protein content (Milkoscan) and somatic cell count (Somacount) in milk samples.

Content of beta-carotene, retinol, α-tocopherol and γ-tocopherol were analysed in milk samples by HPLC after extraction

Total plate count were analysed at next morning after milking and at fifth day after and relative increase was calculated.

RESULTS OF EXPERIMENT

Table 1. Average milk yield and composition during experiment.

Groups	Yield, kg /day	Protein content, %	Fat content, %	β-carotene, µg L^{-1}	Vitamin A, µg L^{-1}	Vitamin E, µg L^{-1}	Sum of imunoglobu-lins, gL^{-1}	Lyzocime, gL^{-1}
group C	26,3	2,97	3,73	300 ±13	394 ±11	179 ±8	3.05	0.35
group EI	23,0	3,19	4,39	332 ±14	488 ±12	622 ±9	3.78	0.85
group E2	23,5	3,10	4,06	274 ±11	377 ±12	551 ±11	3.29	1.32

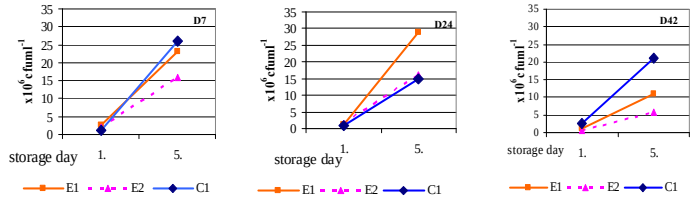

Fig.3 Comparison of increasing of MAFAM in milk samples stored five days

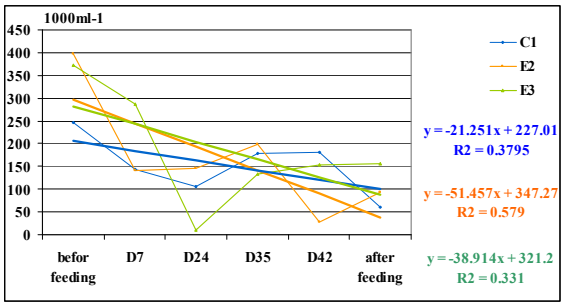

Fig.2. Comparison of somatic cell count in milk samples during feeding experiment

CONCLUSIONS

Supplementation of feed with carotenoids is an opportunity to increase the antioxidant content ad the quality of milk fat as wellas to extend the shelf life