

YIELD, COMPOSITION AND SOME PROPERTIES OF MILK AND SOFT CHEESE AS AFFECTED BY UTILIZATION OF ZINC METHIONINE IN COWS FEEDING.

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ABSTRACT

Twelve lactating Friesian cows with body weight of 450 to 550 kg and 2nd to 5th lactation season were used after 8 weeks of calving in a complete switch-back design with three treatments and three successive experimented periods; each period consisted of 28 days. The first 14 days of each period were considered as transition period followed by 14 days as test period.

Cows in the first group were fed control ration (G1) consisted of 35% concentrated feed mixture, 40% fresh berseem and 25% rice straw without or with supplementation with 5g zinc methionine/head /days (G2) or with 10g zinc methionine/head /days (G3). The attained results revealed an increase in milk yield, total solids, fat total protein, casein nitrogen and whey protein nitrogen contents in milk (G2) and solid not-fat, lactose, non-casein nitrogen, non-protein nitrogen, total volatile fatty acid and ash contents in milk (G3). On the other hand, zinc increased in (G2) and (G3) compared with the control. Minerals contents of milk were not affected by zinc methionine supplementation. Clotting time was decreased while curd tension and curd syneresis increased in milk of (G3) treatment, whereas cheese yield, total solids, fat, recovery of fat and protein in (G3) and (G2) were also increased. The organoleptic properties were insignificantly from the different treatments.

keywords: Friesian cows, zinc methionine, milk, soft cheese,

INTRODUCTION

Zinc has been recognized for several decades as indispensable for normal growth and health in animals (NRC, 2001). The recommended level of zinc in diets of lactating dairy cows has been increased recently (NRC, 1988, 2001). It is an essential component of over 300 enzymes covering all six classes of enzymes (Dibley, 2001). Zinc has biological roles that are characterized by catalytic, structural and regulatory functions. The metabolic action of these systems includes carbohydrate and energy metabolism, protein synthesis, nucleic acid metabolism, epithelial tissue integrity, cell repair and division, vitamin A transport and utilization and vitamin E absorption (Miller et al., 1988; Hunt and Groff, 1990; Dibley, 2001 and NRC 2001). On the other hand, it was reported that methionine is the first limiting amino acid for increasing milk yield and milk protein production (Schwab et al., 1992). Supplying this amino acid may improve microbial protein synthesis and therefore, improve milk production without adding excess nitrogen to the environment.

The objective of this study was to investigate impact of using zinc methionine in cows feeding on the yield and some properties of milk and the resultant soft cheese made from such milk.