Effect of feeding vegetable oils and monensin on conjugated linoleic acid (CLA), and percent PUFA contents in buffaloes milk.

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Abstract

Supplementation of dairy animals rations with polyunsaturated oils, containing either linoleic acid or linolenic acid, can increase the CLA content in milk. Vegetable oils like olive oil and sunflower oil are rich in polyunsaturated fatty acids.

Field experiment was conducted to evaluate the value of adding sunflower oil and olive oil mixture (1:1 by weight) with added ionophore, monensin, to buffaloes' ration on conjugated linoleic acid (CLA) contents in milk fat.

Ten lactating buffaloes (averaged 700 kg body weight in 2nd and 3rd milking season) were randomly divided into two feeding groups of 5-buffaloes each. Rations in the two feeding groups was offered to animals according to their live body weight and milk production. The oils mixture in the experimental group was supplemented at 3% of dry matter intake, and monensin, an ionosphere, was added at 22 mg/kg dry matter intake/day. After 21-days adjustment period on a basal ration consisting of hay (Egyptian clover hay) and concentrate feed mixture (CFM), animals were offered the experimental ration for 7-weeks adaptation period, to allow the rumen micro flora to adapt to the experimental rations, before individual milk samples were collected daily from each animal. Milk samples were proportionally mixed from evening and morning milk to determine average milk composition. Fatty acid profiles were determined on composited milk samples.

Results showed an increase in CLA content in milk by 40% for animals fed the ration supplemented with the oil mixture, compared with the control group. In addition, PUFA (polyunsaturated fatty acids) especially linoleic acid and linolenic acid, were higher as percentage of total fatty acids in milk from animals with added vegetable oils and monensin, compared to the controls. It was concluded that composition of buffaloes milk fat can be manipulated by supplementing the ration with a mixture of olive and sunflower oils added at 3% of of dry matter intake, plus monensin, added as an ionophore at 22 mg/kg dry matter intake/day. This addition resulted in an increase of 40% in CLA content , and an increase in percent PUFA

of total fatty acids in milk fat compared to control ration with no added vegetable fat supplementation.

Key words: Vegetable oils, monensin, CLA, buffaloes, milk, polyunsturated fatty acids (PNFA)