

# **The effect of Sodium Hydroxide treatment of whole Canola seed on Milk Production and Milk Components of Holstein dairy cows**

T. Vafa, A.A. Naserian, and R. Valizadeh. Department of Animal Science, College of Agriculture, Ferdowsi university, P.O.Box:91775-1163, Mashhad,Iran

Whole canola seed is one of the oilseeds which contain high level of lipids (40-60%), of which over 80% is unsaturated fatty acids; linoleic acid (18:2) is the predominant fatty acid (>60, of total fatty acid). Unlike some other oilseeds, canola seed has a very refractory coat that is resistance to degradation in both rumen and small intestine of cattle, so chemical treatment of whole canola seed is a way to increase its digestion. Chemical treatment of whole canola seed with sodium hydroxide (4%DM) was conducted in this experiment. Eight multiparous Holstein dairy cows (average milk production was 34kg±2, average days in milk were 70days) were randomly assigned to replicated 4×4 Latin square designed experiment. Experiment had 4 periods with 21 days in each period (14 days for adaptation, 7 days for sampling). Diet contains alfalfa and corn silage as a forage sources (50%DM). Two kinds of concentrate were prepared (one for control treat, one for other three treats). Diets were fed as TMR. Treatments consist of ; 1- control (without canola seed), 2- ground canola seed(GCS), 3- Whole canola seed treated with NaOH (4%DM)dried after 24 hours (24SCS) and 4- whole canola seed treated with NaOH (4%DM)dried after 48 hours (48SCS). For GCS canola seeds ground daily before each meal. At sampling period feed and feces samples were collected daily. Milk sampling was taken at the last 2 days of each sampling period. Data were analyzed by SAS program. Dry matter intake (23.78, 24.16,24.69,24.52;  $p<0.05$ ), Milk production (kg)(32.58,33.22,32.58,33.12; $p<0.05$ ), milk protein(%) (3.12,3.05,3.1,3.08; $p<0.05$ ) and milk lactose (%) (4.47,4.59,4.64,4.63; $p<0.05$ ) were not affected significantly by treatments 1,2,3 and 4 respectively, but milk fat(%) (3.22<sup>a</sup>,3.11<sup>ab</sup>,3.36<sup>b</sup>,3.29<sup>b</sup>; $p<0.05$ ) was significantly increased in treatment 3. Results show that feeding NaOH treated canola seed for 24 hours increase milk fat maybe because of improving digestibility of canola seed coat, therefore it could increase fatty acids available for absorption. Cows which fed ground canola seed (GCS) had produced more milk than others. It could be because of higher level of fat in their diet.