

CHEMICAL AND BIOLOGICAL TREATMENTS OF SUGAR BEET TOPS SILAGE FOR RUMINANT FEEDING :

1- CHEMICAL COMPOSITION, SILAGE QUALITY AND NUTRITIVE VALUES .

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ABSTRACT

The present study was carried out to investigate the effect of chemical and biological treatments of sugar beet tops (SBT) on oxalic acid toxicity and the nutritive value of experimental rations by Rhmany rams . Four digestion trials were carried out using three rams in each .The animals were nearly equal in body weight 67.2 ± 0.49 kg , and fed the experimental diets according to NRC (1990) . group 1 fed 50 % concentrate feed mixture (CFM) + 50 % berseem hay (BH) as a control , group 2 fed 50 % CFM + 50 % untreated sugar beet tops silage (USBTS) , group 3 fed 50 % CFM + 50 % chemical treated sugar beet tops silage (CSBTS) and group 4 fed 50 % CFM + 50 % biological treated sugar beet tops silage (BSBTS) . The obtained results of chemical analysis indicated that CSBTS had lower oxalic acid content compared with the other types of silages . The biologically treated silage was significantly ($p < 0.05$) higher in DM , CP , EE and NFE contents than those of the other treatments , whereas CF and ash were lowered . On the other hand , the BSBTS was recorded lower NDF , ADF , ADL , hemicelluloses and cellulose contents . The results of amino acid of biological treated silage showed the highest values compared with the other tested treatments .The minerals content of treated or untreated SBTS indicated that the BSBTS had higher levels of all tested minerals. The silage quality of BSBTS had higher pH , lactic acid values and lower total VFA's and $\text{NH}_3 - \text{N}$ concentration . The physical properties of CSBTS showed clearly good properties than the other types of silages . Whereas Mycotoxins were absent in chemical treated silage (CSBTS) . The aflatoxin (B1) and ochratoxin (A) were increased with USBTS group . Feed intake significantly ($p < 0.05$) increased with all types of silage compared with control group . The chemical analysis of CSBTS and BSBTS as well as OM , CP , CF , EE and NFE were in the same trend . On the other side the BSBTS silage was significantly higher ($p < 0.05$) in TDN and DCP. Finally the nitrogen balance results were clearly that is nitrogen intake and excretion in faeces and urine are the best in BSBTS than other treatments

Keywords : Sugar beet tops , Biological and chemical treatment , billy growing lambs and oxalic acid .