تأثير بروتين الغذاء على الاستفادة من النيتروجين في الأغنام

بركات محمد أحمد ، جمال أحمد براغيت ، عبد الله فتحي نيبر ، أسامة أبو العز نايل

قسم الإنتاج الحيواني – كلية الزراعة – جامعة المنوفية

EFFECT OF DIETARY PROTEIN ON NITROGEN UTILIZATION IN SHEEP

B. M. Ahmed, G. A. Baraghit, A. F. Nebar and U. A. Nayel

Department of Animal Production, Faculty of Agriculture, Minoufiya University, Shebin El-Kom

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ABSTRACT: *An experiment was conducted to study the effect of protein source and level on nitrogen metabolism using eight Rahmani rams (average live body weight of 30 kg) in two 4×4 Latin square design and fed four rations i.e., ration (1) soybean meal (SBM) 10% CP, ration (2) SBM 14% CP, ration (3) cotton seed meal (CSM) 10% CP and ration (4) CSM 14% CP. The results revealed that increasing protein level from 10% to 14% improved all nutrients digestibility. Protein source has significant effect on DM, OM, CP and EE digestibility. Nutritive value (TDN and DCP) was improved for ration 2 (SBM 14% CP). Nitrogen balance was significantly higher with ration 2 (11.46 g/d) than the other three rations. VFA production and ammonia-N in the rumen of sheep fed ration 2 was significantly higher than the other rations as affected by protein level. Sheep fed ration 2 had significantly higher level of plasma total protein, albumin and globulin than other rations as affected by protein level. The concentration of AST and ALT were insignificantly affected by protein source and level. The concentration of urea in blood serum of sheep on ration 2 at 2- hrs post feeding (32.15 mg/dl) was significantly (P<0.01) higher than other rations being, 28.35, 26.55 and 29.75 mg/dl, respectively.*

Key words: *dietary protein, digestibility, nitrogen metabolism, microbial activity*, sheep.

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EFFECT OF DRY FAT SUPPLEMENTATION ON DIGESTIBILITY, FEEDING VALUE AND RUMEN FERMENTATION OF OSSIMI SHEEP

B. M. Ahmed,I.M. Saddick,Nazley M. El- Kholy,M. R. Mousilhi
Dept. Animal Production, Faculty of Agriculture, Minufiya University,Dept. Animal Production, Faculty of Agriculture, Minufiya University,Animal Production Research Institute, Agriculture Research Center,Animal Production Research Institute, Agriculture Research Center

ABSTRACT:

This study was carried out in order to study the effects of supplemental protected dry fat on nutrient digestibility, nutritive value and rumen parameters. Three Ossimi Rams (average body weight of 50 ± 3kg) were used in 3×3 Latin square design with three experimental rations. The first one served as a control ration (60% clover hay + 40% concentrate feed mixture) without added fat (R0); the second and third rations were the control supplemented with either 3% (R3) or 5% (R5) dry fat (on DM basis), respectively. The results revealed that digestibility of DM was non-significantly higher with sheep fed the 5% dry fat supplemented ration (R5, 61.54%) than those received the 3% dry fat (R3, 60.01%) or the control ration (R0, 58.96%). The same trend was observed with OM digestibility being higher for R5 (63.96%) followed by R3 (62.48%) and least for R0 (61.64%). Digestibility of CP differed between the dietary treatments being high for R5 (69.46%) and low for R0 (58.12%) and intermediate for R3 (62.64%); differences were highly significant ($P<0.01$). Digestibility of EE was significantly ($P<0.01$) increased from 81.17% in R0 to 84.09% in R3 and to 85.34% in R5. Dietary treatments did not have any significant effects on the digestibility of NFE. Dietary fat supplementation increased the digestibility of CF from 54.15 in the control diet to 58.09 and 60.95% in R3 and R5, respectively. Fat treatments improved the nutritive value as TDN and DCP. Values of TDN were 57.04, 60.72 and 66.19% for R0, R3 and R5, respectively. Digestible CP also improved from 7.22 to 7.66 and 8.29% for R0, R3 and R5, respectively. Rumen VFA was significantly higher for the control group than the treated ones. In general, VFA increased in all treatment groups to reach its peak at 4-hr post feeding and declined thereafter. Concentration of rumen ammonia-N was significantly higher ($P<0.05$) for the control group than the fat-treated groups (at both levels). Values of rumen pH among groups were found to be higher for the control and R3 ration than R5. Logically, pH values took the opposite trend of the VFA.

Key words: Fat, Supplementation, Digestibility, Fermentation, Sheep

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EFFECT OF SULFUR SUPPLEMENTATION ON NUTRIENTS UTILIZATION AND RUMEN MICROBIAL ACTIVITY IN OSSIMI SHEEP

B. M. Ahmed,I. M. Saddick,H. T. Taie,K.M. Abdel-Rahman and M. M. Ali
Department of Animal Production, Faculty of Agriculture, Menufiya University, Shebin El-Kom ,,,

ABSTRACT:

The present experiment was conducted to study the effect of sulfur supplementation on nutrients digestibility, feeding values and rumen microbial activity using four Ossimi rams surgically fitted with ruminal fistulae. The experimental design was 4X4 Latin square design. The S levels were 0, 2, 4 and 6g/head/d (R0, R2, R3 and R4, respectively) The results obtained showed that S-supplementation led to increase in the digestion coefficients. Ration 3 showed highly significance effect in digestion coefficient of DM, OM, CP, NFE and EE than the other studied rations. Nutritive value (TDN and DCP) was highly significant for ration 3 (N:S ratio 10:1). VFA production and ammonia-N in the rumen of sheep fed ration 3 was significantly higher than the other rations.

Key words: dietary sulfur, digestibility, microbial activity, Ossimi sheep.

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EFFECT OF NIGELLA SATIVA AND THYMUS VULGARIS ON DIGESTIBILITY, NITROGEN BALANCE AND PERFORMANCE OF NEW ZEALAND WHITE RABBITS

B.M. Ahmed,S. S. Omar,Elham M. Ghoneim ,A. S. Khalifa
Department OF Animal Production, Fac. of Agric., Minufiya University,,,

ABSTRACT:

A study was carried out on forty growing NZW rabbits to test the effect of Nigella sativa and/or Thymus vulgaris as feed additives. Rabbits were fed on a control diet (C) and 3 experimental diets containing the medical herbs Nigella sativa seeds (NS)or Thymus vulgaris herb (TV)or mixture of both(MIX) for the experimental period of 10 weeks. Paramiters studied included digestibility,N balance, growth performance. The results obtained showed that supplementing the basal diet with herbs did not affect the digestion coefficients. The diet containing the mixture of NS and Tv were higher in their DCP. The MIX group recorded the best value TDN. Rabbits received the MIX ration retained more nitrogen (1.37g/d) than the other three groups. Rabbits in all the experimental groups grew at almost the same rate. The highest performance index was recorded with group fed diet MIX.

Key words: Nigella sativa seeds,Thymus vulgaris herb, rabbits, digestibility, performance.

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EFFECT OF BIOLOGICAL TREATMENT ON CHEMICAL COMPOSITION AND IN VITRO DIGESTIBILITY OF SOME AGRICULTURAL BY-PRODUCTS

G. A. Baraghit,B.M. Ahmed ,M. A. El-Mahy,
Dept. Anim. Prod., Fac. Agric., Minufiya Univ.,,,

ABSTRACT:

This study was conducted to evaluate the effect of biological treatments on chemical composition, fiber fraction and in vitro digestibility of some low quality roughages i.e., wheat straw, rice straw, corn stalk and sugarcane bagasse. The experimental treatments were either 1 or 3 liters of ZAD compound added to 1000 litter water + 50 kg molasses and 20 kg urea for 1 ton of the feedstuff. The samples were treated with the ZAD compound and pressed in plastic bags (holding 1 kg) and closed for either one, two or four weeks. The results obtained reveal that CP content increased in all treated materials with all levels of ZAD. Values of CP were linearly increased as the time of ensiling increased. Biological treatment with ZAD caused a decrease in most fiber fraction especially with sugarcane bagasse; it improved IVDMD and IVOMD for all the tested roughages. The highest values were noticed with 3L ZAD for 4 wks ensiling time.

Key words: Roughages, biological treatments, chemical composition, fiber fraction, in vitro digestibility

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EFFECT OF BIOLOGICALLY TREATED DATE SEEDS ON SHEEP PERFORMANCE

B. M. Ahmed,H. Abdel-Rahman ,Asmaa A. F.Mohamed,
Department of Animal Production, Faculty of Agric., Menufiya Univ., Shebin El-Kom,,,

ABSTRACT:

This study was carried out to investigate the effects of utilizing date seeds, either un-treated or biologically-treated and urea-treated on sheep performance. Thirty two growing lambs were randomly assigned to one of the following rations: diet 1 (T1) consisted from 40% wheat straw (WS) plus 60% concentrate feed mixture (CFM); diet 2, 3 and 4 (T2, T3 and T4) consisted from 40% WS plus 60% CFM from which partially (25%) was replaced by date seeds (either un-treated, DS; biological-, BDS or urea-treated, UDS). The results revealed that treating date seeds with urea or biologically led to a marked increase in CP contents form 7.31 in DS to 15.61 and 21.72% in UDS and BDS, respectively. Average final body weight was 42.37, 43.23, 45.04 and 43.41kg for the groups T1, T2, T3 and T4, respectively. Digestibility of CP was higher for the treated DS (with either treatment) than both control and untreated DS groups. The TDN value was almost equal in all the diets containing DS both treated (67.66 and 65.92%) or untreated (67.54%) in comparison with the control diet (64.31%; without DS).

Key words: Date seed, Biological treatments, Sheep, Digestibility, Performance.