To the soul of my father
And to my mother
I am sincerely grateful to Dr. Shadia Abdalati Omer for her supervision, continuous support, help and kindness.

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Definitions:

- Crude protein (CP)
- Soluble protein (SCP)
- Non protein nitrogen (NPN)
- Ruminal undegraded protein ((RUP))
- Ruminal microbial protein
- By pass protein
- Metabolizable protein (MP)

1.5.2. Protein Digestion in Ruminants

1.5.3. Ammonia Metabolism

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5. Effect of heat and chemical treatments of GNC on in sacco degraded protein.
6. Degraded protein of untreated and HCl treated GNC from 0.3% formaldehyde from fitted model.
The study was conducted to determine the effect of chemical treatment or combined chemical and physical treatments on dry matter (DM), crude protein (CP) degradation characteristics, and effective degradability of groundnut cake GNC. Chemical treatments were used 0.3% formaldehyde, 0.5N NaOH or 0.5N HCl. GNC was either soaked in the chemical or sprayed with it. The 0.5N NaOH or 0.5N HCl treated cake were either air dried or oven dried at (100ºc). Nylon bags technique was employed using three castrated calves.

Treating with 0.3% formaldehyde, 0.5N NaOH or 0.5N HCl significantly (P < 0.01) decreased insitu dry matter and crude protein degradation rate as well as the effective degradability.

Treatment with 0.5N HCl heat dry was more effective than identical treatment with 0.5N NaOH in lowering the effective degradability, and the protein degradation rate. Both treatments had the same CP washing loss.

Abstract

The study was conducted to determine the effect of chemical treatment or combined chemical and physical treatments on dry matter (DM), crude protein (CP) degradation characteristics, and effective degradability of groundnut cake GNC. Chemical treatments were used 0.3% formaldehyde, 0.5N NaOH or 0.5N HCl. GNC was either soaked in the chemical or sprayed with it. The 0.5N NaOH or 0.5N HCl treated cake were either air dried or oven dried at (100ºc). Nylon bags technique was employed using three castrated calves.

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Treatment with 0.5N HCl heat dry was more effective than identical treatment with 0.5N NaOH in lowering the effective degradability, and the protein degradation rate. Both treatments had the same CP washing loss.
Soaking GNC in any of the used chemicals was significantly (P < 0.05) more effective than spraying it with the same chemicals. It can be concluded that combining chemical and physical treatments was effective in protecting GNC from rumen degradation. The results of this work were compared and discussed with other similar researchers findings.

ملخص الدراسة

أجريت هذه الدراسة لتحديد تأثير المعاملة الكيميائية أو المعاملة الكيميائية مع الفيزيائية على معدل تكسير المادّة الجافة 'البروتين الخام و التكسير الفعال لكسب الفول السوداني

المعاملة الكيميائية المستخدمة 3% فورمالدهايد ، 0.5 محلول نظامي هايدروكسيد صوديوم أو 0.5 محلول نظامي حمض الهيدروكلوريك 

تمت المعاملة اما بتشريب كسب الفول بالمواد الكيميائية أو برشها. جفف جزء من الكسب المعامل بالهواء في درجة حرارة الغرفة والجزء الاخر جفف بالحرارة باستخدام فرن بدرجة 100م وقد استخدمت تقنية اكياس النايلون باستخدام ثلاث عجلات عجول مخصية.
المعاملات بكل المواد الكيميائية اظهرت انخفاض معنوي في معدل تكسير
المادة الجافة، البروتين (p<0.01) والتكسير الفعال لكسب الفول السوداني
المعالجة بحمض الهيدروكلوريك المجفف بالحرارة اكثر فاعليه في تقليل
التكسير الفعال ومعدل تكسير البروتين من المعالجة بهايدروكسيد
الصوديوم المجفف بنفس الطرق، بينما كلتا المعاملتين قللت من ا
لبروتين الداپ.

كانت (p<0.05) تشرب الكسب بأي من المواد الكيميائية المستخدمة معنوي
أكثر فاعليه من رشة بنفس المواد. يمكن القول ان استخدام المعاملات
الكيميائية مع الفيزيائية كان فعالا في حماية كسب الفول السودانى من
تكسير الكرش. نتائج هذه الدراسة قورنت وتوقشت مع نتائج باحثين اخرين
مشابهة.