

## **Dedication**

To .. Who loved me before I do to them, gave me without  
.asking

And burned their selves to light me the way..so they  
.teach me that life is tender..And love is the fountain of life

To.. Who gave me the meaning of live...And suffered a  
.hardship for me

My beloved mother....God gives you health and wellness

,To....Source that gave me hope in despair's moments

**...My sisters**

**My brothers**

**I have to say**

My tragedies are feeling powerless to express facts in a  
way make me satisfy.. and about all of you beloved, it's my  
. ...weakness more than possibility

So I will keep silent

## **Acknowledgement**

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Special thanks and appreciation are due to **animal production department labors** for their valuable help in .preparing this research



## **Abstract**

The effects of chromium supplementation to the ration  
on the yield and milk composition of Nubian goats

This experiment was conducted in the department of  
animal production of the college of agriculture shambat  
. (SUST), during the period of ( 18-11-2012 to 4-4-2013

Twelve Nubian goat, which have more than one  
production season were selected and accordingly divided in  
to three equal groups (A, B, C ) based on their averaged body  
.weights

The animals in group A and C were fed with chromium  
supplementation added as 1.25 ml g to each supplemented  
group according to their averaged body weights , as  
. (recommended by (Alltech company, USA

Average ambient temperature in the shed was recorded  
.to study it

Effect on the experimental animal body temperature  
and hence the effect of chromium supplementation on the  
experimental animal body temperature , feed intake and the  
.effects on milk yield and composition of the animals

-:The results of this study reflected the following  
No significant difference in body temperature .  
between all the experimental animals was  
.rdcorded

significant difference ( $p \leq 0.01$ ) effect of chromium supplemented on milk yield of the two experimental group (A& C) compared with the .(control group (B

Also a significant ( $p \leq 0.05$ ) effect of the chromium supplemented on the solid not fat (SNF) in the milk of the treated group as indicated the following :table

<b>%Lactose</b>	<b>%Ash</b>	<b>%SNF</b>	<b>Protein</b>	<b>%Fat</b>	<b>Treatment</b>
%					
1.12±3.56	0.09±0.	1.37±9.0	0.58±2.	0.37±2.	<b>Treated</b>
	95	5	80	05	<b>A</b>
1.59±3.07	0.08±0.	2.37±9.6	0.74±3.	0.64±2.	<b>Treated</b>
	64	3	26	60	<b>C</b>
1.62±3.53	0.08±0.	1.99±10.	0.86±3.	0.49±3.	<b>Control</b>
	72	83	52	00	<b>B</b>

## **المستخلص**

أثر إضافة عنصر الكروميوم للعليقه على إنتاجية ومكونات اللبن في الماعز النبوي. أجريت هذه الدراسة بحظائر قسم الإنتاج الحيواني جامعة السودان للعلوم والتكنولوجيا (شمبات) في الفترة من 18/11/2012 م - 4/4/2013 م.

تم اختيار عدد 12 ماعز منتجة من فصيلة الماعز النبوي التي لها أكثر من موسم إنتاج ' تم تقسيمها إلى ثلاثة مجموعات متساوية حسب متوسط الأوزان وموسم الإنتاج .

المجموعات المعاملة (الأولى والثالثة) تمت تغذيتها على العليقة المضاف إليها عنصر الكروم حسب متوسط وزن المجموعه المعامله بمعدل 1.25 ملجم وذلك حسب توصيات الشركة المنتجة (Alltech.USA) . تمت دراسة متوسط درجات الحراره داخل الحظيره لمعرفة أثر ذلك على درجة حرارة الجسم لحيوانات التجربه وأثر إضافة عنصر الكروم على درجة حرارة الجسم ثم معدل إستهلاك الغذاء وأثر كل ذلك على إنتاجية ومكونات اللبن المنتج ' أظهرت نتائج هذه التجربه على أنه:-

- لا يوجد تأثير معنوي في تغيير درجة حرارة الجسم في كل حيوانات التجربة.
- كما أظهرت النتائج بأن إضافة عنصر الكروم أدي إلى زيادة معنوية ( $p \leq 0,01$ ) في أوزان الحيوانات المعاملة (المجموعه الأولى والثالثة علي التوالي  $92 \pm 30.16$  kg و  $1.94 \pm 38.92$  بالرغم من عدم وجود فروقات في العلف المستهلك لكل المجموعات.
- إضافة عنصر الكروم لعلية الماعز المنتجه للبن أدت إلى زيادة معنوية ( $p \leq 0,01$ ) في إنتاج الحليب  $\pm 1.458$  litter أو  $1.457 \pm 403.04$  litter في المجموعه الاولى والثالثة علي التوالي مقارنةً مع مجموعة السيطرة  $0.968 \pm 119$  liter.
- كما أظهرت النتائج أن إضافة عنصر الكروم له تأثير معنوي ( $p \leq 0.05$ ) على مكونات جوامد اللبن مما أدى إلى إنخفاض هذه النسب في المجموعات المعاملة حسب ما هو موضح أدناه:

العا ملات	نسبة الدهن	نسبة البروتين	نسبة الماء	نسبة الرماد	نسبة اللاكتوز
العا ملة A	2.05 $\pm$ 0.37	2.80 $\pm$ 0.58	9.05 $\pm$ 1.37	0.59 $\pm$ 0.09	3.56 $\pm$ 1.12
العا ملة C	2.60 $\pm$ 0.64	3.26 $\pm$ 0.74	9.63 $\pm$ 2.37	0.64 $\pm$ 0.08	3.07 $\pm$ 1.59
السي طرة B	3.00 $\pm$ 0.49	3.52 $\pm$ 0.86	10.83 $\pm$ 1.99	0.72 $\pm$ 0.08	3.53 $\pm$ 1.62



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## **LIST OF ABBREVIATION**

Acid Detergent Fiber	ADF
Body Weight	BW
Chromium	Cr
Dry Matter	DM
Dry Matter Intake	DMI
Glucose Tolerance Factor	GTF
Non-Esterified Fatty Acids	NEFA
Part Per Billion	Ppb
Temperature Humidity Index	THI
Total Mixed Ration	TMR