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Abstract

The effect of feeding urea treated Addar grass hay (5%) and untreated Addar hay and sorghum straw (control) in stage"1", plus supplementation with molasses in stage "2" was studied in fifteen bull calves (12-18) month of age and .(112.5kg) average body weight

Animals were fed in a changeover design in two experimental consecutive periods of 8 weeks duration in each stage and was separated by seven dry adaptation .periods in each case

The result showed that the highest dry matter intake (DMI) (112.5kg/head/stage) was recorded with treated Addar with urea in stage 1 and when , supplementation with molasses in stage 2. The lowest DMI (87.2kg head/stage) were obtained on feeding sorghum straw in two stages. Generally, differences between diets contain of treated and untreated Addar in two stages were significant .((P<0.01

Crud protein intake (CPI) was highest (12.2kg/head/stage) in treated Addar with urea in stage 1 and stage 2. When supplementation with mall as and lowest (3.5/head/stage) on sorghum straw when untreated with urea in stage 1

and when supplemented with males in stage 2, there were .differences (P<0.01) between diets were also significant

The highest body weight (95.5/head/stage) was recorded when urea treated Addar stage (1) and when supplementation with molasses in stage (2) and lowest (80.4 main group/stages) when offered the untreated Addar only stage (1) or with molasses in stage (2). Variation between treatment were significant (P<0.01) in experiment (2). The dry matter degradability study of the tested three diets (treated Addar, untreated Addar and sorghum straw stage 1 and with molasses in (stage 2) was carried out using fistulated bull equipped with rumen cannula. The effective degradability (%) at (0.05 rumen out flow rate) of the tested diets of treated Addar, untreated Addar and sorghum straw were (45.4,52.7,44.6) respectively) untreated Addar showed high dry matter degradation. Addition of molasses to Addar resulted in .increased dry matter degradability

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There were significant (P<0.01) differences between the three diets. In experiment (3) of this study (12) un castrated Sudanese lambs *(Ashgur)* were used Lambs ranged in age between (7-8) months and live body weight averaged (19kg). The apparent digestibility (%) of DM, OM and C.P for three diets treated Addar, untreated Addar and sorghum straw stage (1) were (58.7, 49.2 and 61.96; 50.8, .(55.4 and 34.5; 56.0, 58.8 and – 34.9 respectively

However, in stage (2)it was found that the molasses supplemented with decreased the apparent digestibility (%) of DM, OM and C.P for tow diets except sorghum straw (54.1, 35.8 and 39.1; 44.1, 45.0 and 16.7; 57.1, 58.6 and 49.5 respectively). There were NO significant ($P<0.05$) .differences between treatment and stages

بسم الله الرحمن الرحيم

ملخص الدراسة

أثر التغذية بدريس العـدار المعامـل باليوريـا (5 %) و الغيـر معامـل و حطب الذرة (شاهد) في المرحلة الأولي و إضافة المـولاس فـي المرحلـة الثانية. تمت دراسـتها باسـتخدام 15 عجـل فـي عمـر (12 – 18) شـهر ومتوسط أوزانها (112.5) كيلوجرام.

تم تطبيق كل المرحلتين علي فترات مختلفة علي التوالي كل مرحلة تحتوي علي 8 أسابيع كما سبقت كل مرحلة فترة أقلمة لمدة 7 أيام.

أوضـحت النتائـج أن أعلـي معـدل لاسـتهلاك المـادة الجافـة (112.5) كيلوجرام تم تسـجيله عنـد تنـاول العـدار المعامـل باليوريـا فـي المرحلـة الأولي وكذلك عند أضافه المولاس في المرحلة الثانيـة. بينمـا أقـل معـدل استهلاك (87.2 كيلوجرام / المرحلة) تم تسجيله عند تنـاول حطـب الـذرة في المرحلتين.

عموما توجد فروقات معنوية($P < 0.01$) بين العلائق الثلاثة في المرحلتين.

المتناول من البروتين الخام أيضا تم تسجيل علي معدل للاسـتهلاك (12.2 كيلوجرام / للمرحلة) عنـد تقـديم العـدار المعامـل باليوريـا المضـاف إليـة المولاس (المرحلتين) و أقل معدل استهلاك (3.5 كيلوجرام / للمرحلة).

أعلي وزن (96.5 كيلوجرام) تـم تسـجيله عنـد تنـاول الحيـوان العـدار المعامل باليوريا و المضاف إليـه المـولاس(المرحلـتين) بينمـا أقـل وزن (80.4 كيلوجرام) تم تسجيله عند تناول الحيوان العدار الغير معامـل باليوريا (المرحلة الأولي) و المضاف إليه المولاس (المرحلة الثانية).

عموما توجد اختلافات معنوية. (0.01 > P) بين العلائق الثلاثة من ناحية الوزن.

في التجربة الثانية في دراسة فقدان المادة الجافة في الكرش بالنسبة للعلائق الثلاثة موضع الدراسة. أجريت هذه التجربة علي عجل مفتوح الكرش ولوحظ معدل التكسر للمادة الجافة (%) عند (معدل تفريغ الكرش عند 0.05) العلائق الثلاثة عدار معامل، عدار غير معامل و حطب ذرة وكانت (45.4 ، 52.7، 44.6 علي التوالي). العدار الغير معامل سجل أعلي معدل تكسير للمادة الجافة ووجد هنالك زيادة في المعدل عند إضافة المولاس (المرحلة الثانية) كما توجد فروقات معنوية بين العلائق الثلاثة واضح. (P < 0.01)

في التجربة الثالثة استخدمت في هذه الدراسة عدد 12 رأس من الضأن الأشقر الغير مخصيه بمتوسط وزن (5 ± 19) كيلوجرام و عند عمر (8 ـــ 7) شهور بغرض دراسة و تقيم القيمة الغذائية للعلائق الثلاثة المكونة من (عدار معامل ، عدار غير معامل وحطب ذرة) حيث وجد أن معامل الهضم للمادة الجافة و المادة العضوية و البروتين الخام في المرحلة الأولي (58.7 % ، 49.2 % ، 61.96 % ، 50.8 % ، 55.4 % ، و 34.5 % ، 56.0 % ، 58.8 % ، 34.9 %) علي التوالي.

ولكن في المرحلة الثانية وجد أن إضافة المولاس قد أدت الي تدني معامل الهضم بالنسبة للمادة الجافة و المادة العضوية و أيضا البروتين الخام لكل من العدار المعامل و الغير معامل ماعدا حطب الذرة و النتائج هي (54.1 ـ 35.8 ، 39.1 ـ 44.1 ـ 45.0 ـ 16.7 ـ 57.1 ـ 58.6 ، 49.5) علي التوالي.

لا توجد فروقات معنوية.(P < 0.001) بين المعاملات و المراحل.

Appendix (1). Approximate analysis of the forages under study in stages 1.2

.Stage 1

NFE	NDF	CF	EE	CP	Ash	DM	S. Name	Sample
15.2	52	36	1.6	15.9	26.3	95	**Treated Addar**	A
33.6	74	46	1.6	7.0	7.8	96	**Un treated Addar**	B
34.4	73	46	2.0	3.6	9.7	95.7	**Sorghum straw**	C

.Stage 2

NFE	NDF	CF	EE	CP	Ash	DM	S. Name	Sample
23.7	43	31	1.2	11.9	26.7	94.6	**Treated Addar**	A
36.7	68	42	1.6	6.4	9.1	95.8	**Un treated Addar**	B
41.0	64	39	1.6	3.1	10.0	94.6	**Sorghum straw**	C

Appendix (2). Bull calves performance in the two stages

Table (1) Dry matter intake (Kg) and Crude Protein intake (Kg) and weight change (Kg) of group (A) treated Addar. Stage.1

Week .No	Dry matter (intake (Kg	Crud protein intake ((Kg	Weigh change ((Kg	Gain
1	90.25	10.47	86.5	0
2	87.4	10.14	88.2	1.5
3	100.7	11.60	88.0	0
4	98.8	11.46	89.0	1
5	107.35	12.45	92.0	3
6	117.8	13.66	91.0	1-
7	80.75	9.36	92.0	1
8	109.25	12.64	92.2	0.2

Table (2) Dry matter intake (Kg) and Crude Protein intake (Kg) and weight change (Kg) of group (B) untreated Addar. Stage.1

Week .No	Dry matter intake ((Kg	Crud protein intake ((Kg	Weigh chang (e (Kg	Gain
1	118.2	10.02	80.6	0
2	116.3	9.86	80.0	0.6-
3	107	9.07	78.4	1.6-
4	92	7.80	78.0	0.4-
5	93.8	7.95	79.0	1.1
6	64.8	5.49	77.0	2-
7	45	3.82	75.0	2-
8	77	6.52	77.5	2.5

Table (3) Dry matter intake (Kg) and Crude Protein intake (Kg) and Wt change. (Kg) of group (C) Sorghum straw. Stage.1

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Week .No	Dry matter intake ((Kg	Crud protein intake ((Kg	Weigh change (((Kg	Gain
1	59.3	3.72	83.8	0
2	52	3.27	83.0	0.8-
3	56.5	3.55	83.5	0.5
4	41.4	3.51	83.0	0.5-
5	49	3.08	84.0	1
6	66	4.15	86.0	2
7	60	3.77	85.0	1-
8	62	3.89	86.0	1

Table (4) Dry matter intake (Kg) and Crude Protein intake (Kg) and Wt change. (Kg) of group (A) treated Addar. Stage.2

Week .No	Dry matter intake ((Kg	Crud protein (intake (Kg	Weigh change ((Kg	Gain
1	92.1	9.59	93.0	0
2	98.5	10.25	95.0	2
3	115.1	12.00	98.0	3
4	124.3	12.90	100	2
5	139	14.47	105	5
6	147.3	15.33	109.2	4.2
7	147.3	15.33	112	2.8
8	143.7	14.96	112.5	0.5

Table (5) Dry matter intake (Kg) and Crude Protein intake (Kg) and Wt change. (Kg) of group (B) untreated Addar. Stage.2

Week .No	Dry matter intake ((Kg	Crud protein intake ((Kg	Weigh chang (e (Kg	Gain
1	71.5	3.37	78.0	0
2	88	4.15	79.0	1
3	91.7	4.33	80.0	1
4	91.7	4.33	81.0	1
5	114.2	5.36	83.0	2
6	115.4	5.42	84.5	1.5
7	119.2	5.60	86.0	1.5
8	124.0	5.80	89.5	3.5

Table (6) Dry matter intake (Kg) and Crude Protein intake (Kg) Wt change. (Kg) of group (C) sorghum straw. Stage.2

Week .No	Dry matter intake ((Kg	Crud protein intake ((Kg	Weigh change ((Kg	Gain
1	78.0	2.26	87.4	0
2	93.2	2.70	89.2	1.8
3	95.1	2.76	91.0	1.8
4	99	2.87	93.0	2
5	137	3.97	98.0	5
6	156	4.52	102.0	4
7	142.7	4.14	105.4	3.4
8	148.3	4.30	109.0	3.6

Appendix (3). Degradation (%) and degradability of dry matter of feeds used in experiment 2.in stages 1. 2

Stage. 1

Time						Treat
96	**72**	**48**	**24**	**8**	**0**	
49.5	47.89	46.31	34.73	20.0	15.78	**Treat Addar**
51.0	44.73	40.52	31.05	21.57	14.21	
55.0	46.84	40.52	27.89	19.47	14.73	
60.78	45.6	45.16	45.30	28.78	23.45	**Un treat Addar**
60.78	47.44	52.15	37.84	28.78	22.38	
63.97	46.9	46.23	37.31	29.31	22.38	
68.50	62.13	46.71	47.79	33.24	26.55	**Control straw**
68.50	58.41	56.8	40.88	33.58	27.08	
72.21	57.88	56.81	58.94	32.92	27.08	

Stage. 2

Time						Treat
96	**72**	**48**	**24**	**8**	**0**	
86.31	87.4	77.17	60.26	51.03	54.83	**Treated Addar + Molasses**
89.6	80.8	84.69	68.40	56.46	61.35	
85.23	79.8	75.46	61.34	58.63	58.08	
89.9	89.96	85.05	68.70	64.34	66.88	**Untreated Addar + Molasses**
92.6	87.78	82.87	65.43	67.06	61.48	
89.4	87.78	82.07	64.88	63.24	62.02	
75.70	75.18	64.14	45.21	43.11	40.08	**Straw + Molasses**
77.28	76.23	64.14	47.43	43.63	38.90	
81.49	79.39	62.97	53.62	41.00	33.12	

Appendix (4). Digestibility efficiency (%) of feeds used in experiment 3in stages 1. 2

Stage 1

Group	NO	DMD	OMD	CPD	EED	CFD	NFED
Treated Addar	1	58.9	50.3	63.9	69.17	48.62	45.13
	2	60.6	51	64.3	60.63	55	33.4
	3	56.5	46.3	57.5	56.4	53	24.5
Untreated Addar	1	55	57.5	45.9	55	56	65
	2	40	48.7	31.9	40.3	45.5	67.1
	3	54	57.9	25	65.9	58	64.7

	4	54	57.6	35.2	65.7	60.2	59
Sorghum	1	59	62.5	19.9-	67.2	65.3	68.2
	2	56	59	42.1-	56.6	60.3	69.3
	3	57	59.1	-31.16	65.6	60.8	67
	4	52	54.5	46.6-	62	59.7	62.3

DMD = Dry matter digestibility.

OMD = Organic matter .digestibility

CPD= Crud protein digestibility.

EED = Ether extract .digestibility

CFD = Crud fiber digestibility.

NFED= Nitrogen free extract .digestibility

Group	DMD	OMD	CPD	
Treated Addar	56.1	42.9	44.17	
	56.2	44	39.6	
	50.1	20.6	33.43	
Untreated Addar	56.7	58.1	34.9	
	35.8	36.2	0.952-	
	35.9	36.4	8.31	
	48.1	49.4	24.7	
	61.6	63.14	26.4-	

Sorghum	64.3	65.4	87.8-	
	60.5	60.9	23.9-	
	41.9	44.9	59.7-	

DMD = Dry matter digestibility.

OMD = Organic matter digestibility.

CPD= Crud protein digestibility.

EED = Ether extract digestibility.

CFD = Crud fiber digestibility.

NFED= Nitrogen free extract digestibility.

Appendix (5). Chemical Composition of Cane Molasse

Cane Molasses	Property
79.5 85-92[b]	(%) Brix
1.41 1.38-1.52[a]	Specific gravity
75.0 75-88[a]	(%) Total solids
46.0	(%) Total sugars

44.60[a] 50-90[b]	
3.0 2.5-4.5[b]	(%) Crude protein
0.0	(%) Total fat
0.0	(%) Total fiber
8.1 7-15[b]	(%) Ash
0.8	(%) Calcium
0.08	(%) Phosphorus
2.4	(%) Potassium
0.2	(%) Sodium
1.4	(%) Chlorine
0.5	(%) Sulfur

.(Y.Satyawali *et al*, 2008)

Plate (1) Addar grass

Plate (2) Addar grass in the field

Plate (3) Collection and balling Addar grass

Plate (4). Treated Addar Grass in plastic sheets

Plate (5) Feeding treated Addar grass