Use of Different Levels of Treated and Non-Treated Wild Reeds with Fiber-Hydrolyzed Enzymes in the Physiological Performance of Awassid Lambs

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Abstract

The experiment aimed to use different levels of wild reed and the effect of adding fiber-degrading enzymes to it in some blood traits in Awassi lambs, where 20 Awassi lambs were used in this experiment aged between 4-5 months and with a weight rate of (20.76±0.95).(kg), the lambs were randomly distributed to four groups, the first group: the animals were raised under the specified breeding system (3.5% of the live body weight) and they were given a diet consisting of (50% reed + 50% concentrate) without enzymes, the second group: the animals were raised under the open breeding system and they were given a diet consisting of (50% reed + 50% concentrate) without enzymes, the third group: the animals were raised under the specified breeding system (3.5% of the live body weight) and they were given a diet consisting of (50% reeds + 50% concentrate) with Add enzymes, Group IV: The animals were raised under the open breeding system and were given a diet consisting of (50% reed + 50% concentrate) with the addition of enzymes. The results indicated that there were significant differences at the level of (P≤0.05) for the trait (total protein) indicated the superiority of the fourth treatment (E2) followed by the second treatment (F2) over the third treatment (E1) and the first treatment (F1)), and the results indicated that there are significant differences at the level of (P≤0.05) for the characteristic (albumin) to decrease the first treatment (F1) from the rest of the three treatments, and the results also indicated that there are no significant differences at the level of (P≤0.05) For the trait of globulin (draw 45 days of the experiment), as for the overlap, the results showed that there are significant differences at the level of (P≤0.05) for the total protein trait, where (E2*F1) outperformed (E1*F1, E1*F2 andE2*F1).), and the results of the statistical analysis showed that there were no significant differences at the level of (P≤0.05) for the characteristic of albumin and globulin.

The results (90 days of the experiment draw) indicated a significant superiority at the level of (P≤0.05) in the total protein trait, where the first treatment (F1) decreased from the rest of the three treatments, and the results of the albumin trait indicated a decrease in the first treatment (F1).) for the rest of the three coefficients, as for the characteristic of globulin, the results of the statistical analysis showed that there were no significant differences at the level of (P≤0.05) between the four coefficients. The results regarding the overlap between the coefficients indicated a significant presence at the level of (P≤0.05) for the total protein trait, whereT (E1xF1) the lowest values between the interactions, and for the characteristic of albumin where (E1xF1) was the lowest values between the interactions, but in the characteristic of globulin the results showed no significant differences. The significant increase that occurred in the level of total protein and albumin in the groups that ate a specific diet with the presence of the enzyme may be attributed to the effect of enzymes that helped in the digestion of the feed material, which increased the level of blood proteins in the serum of treated animals, which reflected positively on the increase in their weight record with the second group.

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The results indicated (for a withdrawal of 45 days of the experiment) and that there is a significant superiority at the level of (P≤0.05) for the urea trait The results showed a decrease in the fourth treatment (E2) from the rest of the three treatments, the results of the glucose trait indicated a decrease in the third treatment (E1) for the rest of the three transactions. As for creatinine, the results indicated that there was no significant superiority between the four treatments.
The results for the interference indicated a decrease in the interference (E2 * F2) from the rest of the interactions, where (E1 * F2) exceeded the rest of the interactions for the characteristic of urea, while for the characteristic of glucose, the results indicated that no significant superiority was recorded, as well as for the creatinine trait, so no significant superiority was recorded. The low level of urea in the blood serum of enzyme-treated animals may be due to the maximum utilization of protein digested by animals treated as a result of the action of enzymes Digestion added to the diet and converted into vegetable protein for the body.

Key words: wild reed, fiber-degrading enzymes, hematological traits, Awassi lambs

Introduction

Due to the importance of increasing population growth, the care and improvement of available livestock and its exploitation has become a necessary need and a goal to meet the growing needs of animal protein, and this is not possible without the provision of adequate quantities and quality of feed, as livestock can play a crucial role in achieving food security and alleviating poverty [6,7] . One of the most important reasons for the increase in the rate of consumption of red meat is due to the increase in the number of population as well as the high income per capita, which in turn leads to the desire to obtain materials with high nutritional value in red meat [5] that Iraq is one of the countries that suffer from a severe shortage of fodder resources, especially green fodder, as the available pasture areas and the areas specified for fodder cultivationGreen is not commensurate with the needs and numbers of animals present. Coarse fodder occupies an important part in the diet of ruminants, so the attention of many researchers turned to the remains of agricultural and industrial crops and wild plants available, some of them used date fronds [1], some of them used palm fronds [3] as well as some of them used Al-Atban [4] A number of researchers went to the use of wild cane [9] or sugar cane residues or date kernels [2]. Phragmites communis is one of the most widespread plants, as the wild reed plant grows on arable land and is not suitable for agriculture alike, as well as the reeds are spread in rivers, lakes and irrigation channels. Any reed plant is often called by another name such as Common or Wild reed to denote a widespread or wild common species. This is because it grows in an aggressive form, that is, without human intervention in its cultivation, but the cane can be used to increase the available feed, as the green tops have sufficient levels of protein, reaching approximately 9.5%. [9], Enzymes are protein compounds with stimulating qualities (Catalyst) that increase the speed of chemical reactions without being consumed during the reaction, small amounts of the enzyme are sufficient to stimulate the reaction of a large number of reactants, buyAll enzymes have some structural and functional properties, where all enzymes contain an active site called

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the Active Site (Active Site) through which the transformation of reactants into resulting substances is stimulated. Enzymes also refer to chemical reactions in small quantities without any change in their chemical composition can be extracted from cells without losing their vital activity and enzymes have a wide range in many fields, including in medical, industrial, agricultural uses, as well as academic research.

Materials and method

This experiment was conducted in one of the private sector fields in Salah al-Din Governorate / Abbasiya region, 20 local Awassia lambs were used and purchased from the markets from the Abbasiya area of Salah al-Din Governorate, and their ages ranged between 4-5 months and an average weight of (20.76±0.95 Kg), Enzymes purchased from Market (Commercial) Nambyun-Dong,Gwanak-gu.seoul. the animals were divided into four groups for each group (5 lambs), the diet consisted of wild reeds and from a concentrated diet 3 kg of enzymes were added to 1 / ton(0.001/1ton(of wild reed, the first group: the animals were raised under the specified breeding system (3.5% of the live body weight) and were given a diet consisting of (50% reed + 50% concentrate) without enzymes, the second group: Animals were raised under the open breeding system and were given a diet consisting of (50% reed + 50% concentrate) without enzymes, the third group: animals were raised under the specified breeding system (3.5% of live body weight) and were given a diet consisting of (50% reed + 50% concentrate) with the addition of enzymes, the fourth group: animals were raised under the open breeding system and were given a diet consisting of (50% reed + 50% concentrate) with the addition of enzymes, The feed was given in the form of a mixture of cane, concentrated feed, and enzymes

Where the experimental animals were subjected to an introductory period of (14 days), during which the animals were taken care of healthily before the start of the experiment to protect them from possible disease infections. The animals were fed with a diet consisting of (wild reed, concentrated diet) by (50% wild cane, 50% concentrated diet) with two systems specified and open individually for each animal for all transactions and on two meals morning and evening Clean water was also provided in a barn for each group and mineral salt cubes were placed inside each barn for all groups. Blood samples were collected in a way Regular every forty-five days at half past seven in the morning after cutting feed for animals for 12 hours, from the jugular vein in the neck area by a 10 ml wine syringe in plastic tubes clean and sterile wine.

Preparation and preparation of the diet:

The wild reeds were processed after we cut the limbs of the plant by a special mechanical cutting machine for this work that works with fuel and is carried manually and after the process of cutting the upper parts of the plant, which are with a high abundance of green leaves ranging in length between 0.5-0.75 meters, after that it was transferred to a special place in order to dry it in order to expose it to direct sunlight and after several days it was transferred to the laboratory in order to crush it and soften it and then it was mixed with the rest of the diet as well as added Some of them have fiber-degrading enzymes, and they were placed in bags containing 50 kg of diet each bag and transported to the place of the experiment .

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Statistical analysis

The statistical analysis of the data was conducted using the ready-made statistical analysis program SAS (2012) according to the design of a factor experiment (2 * 2) and a complete random two-way design, to show the effect of the diet and enzyme treatment on the studied traits, and the significance of the differences between the averages was tested using Duncan test (1955), according to the following mathematical model:

Yijk= μ+Fi+Ej+FEij+e ijk

Whereas :

Yijk : observation value k due to the i feeding system and enzyme j.

μ : the general average of the adjective.

Fi : Effect of the feeding system i

Ej : Enzyme effect

FEij : Effect of interaction between the diet and the enzyme.

eijk : random error that is naturally distributed with an average of zero and the variance of the capacity of e 2 σ.

Results and discussion

Effect of Using Different Levels of Wild Cane Treated and Untreated with Fiber-Hydrolyzed Enzymes on Some Biochemical Characteristics of Blood of Awassid Lambs.

Total protein, albumin and globulin

The results of the statistical analysis of the proteins table below indicated that there are significant differences at the level of (P≤0.05) in the characteristic of (total protein) The results indicated a significant superiority at the level of (P≤0.05) The fourth treatment (E2) followed by the second treatment (F2)) on the third treatment (E1) and the first treatment (F1), as the results showed that there are significant differences at the level of (P≤0.05) for the trait (albumin), where the three transactions outnumbered, namely the second transaction (F2) and the transaction The fourth (E2) and the third treatment (E1) on the first treatment (F1), and the results also showed that there were no significant differences at the level of (P≤0.05) for the globulin trait for the first withdrawal during (45 days of the experiment's life), as for the overlap, the results showed that there were significant differences At the level of (P≤0.05) for the total protein trait, where (E2*F1) outperformed (E1*F1, E1*F2 and E2*F1), and the results of the statistical analysis showed that there were no significant differences at the level of(P≤0.05) for albumin and globulin.

The results of the statistical analysis of the second draw (90 days of the experiment) indicated a significant superiority at the level of (P≤0.05) in the total protein trait, where the second treatment (F2) was outclassed, followed by the treatment (E2) and then the third treatment was followed by the first treatment (F1).), and as indicated by the results of the statistical analysis in the characteristic of albumin to the superiority of the second treatment (F2) and the fourth treatment (E2) and the second treatment (F2) on the first treatment either in the characteristic of globulin, the results of the statistical analysis showed that there are no significant differences at the level of (P≤0.05) between the four transactions.

The results of the statistical analysis regarding the interaction between the coefficients indicated a significant presence at the level of (P≤0.05) in both the total protein trait and the albumin, the results showed that there were significant differences at the level of (P≤0.05) for the total protein trait, where it was (E1xF1) The lowest values between the interactions, the results of the statistical analysis of the albumin trait showed significant differences at the level of (P≤0.05) where (E1xF1) was the

lowest values between the interactions, while in the globulin trait the results showed that there were significant differences at the level of (P≤0.05). The significant increase in the level of total protein and albumin in the groups that ate a specific diet with the presence of the enzyme may be attributed to the effect of enzymes that helped in the digestion of the feed material, which increased the level of blood proteins in the serum of treated animals, which reflected positively on the increase in their weight record with the second group

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Table 1.Effect of Dietary System and Treatment with Fiber-Hydrolyzed Enzymes on Blood Proteins

Factors	Transactions	Epithets Total Protein	Albumin	Globulin
		First draw 45 days		
Feeding system	F1	5.86±0.15 b	2.72±0.13 b	2.10±0.09 A
	F2	6.35±0.22 a	3.16±0.12 ?	2.30±0.09 A
Enzyme treatment	E1	5.80±0.14 b	2.86±0.16 A	2.24± 0.11 A
	E2	6.41±0.21 A	3.02±0.13 A	2.16±0.08 A
Overlap	E1xF1	5.74±0.14 b	2.71±0.28 A	2.12±0.15 A
	E2xF1	5.98±0.29 b	2.74±0.05 ?	2.08±0.13 A
	E1xF2	5.86±0.27 b	3.02±0.15 A	2.37±0.15 A
	E2xF2	6.10±0.14 A	2.94±0.10 A	2.20±0.06 A
Factors	Transactions	Second draw 90 days		
Feeding system	F1	6.03±0.23 b	3.16±0.15 b	2.87±0.12 A
	F2	6.97±0.35 ?	4.06± 0.25 A	2.91±0.12 ?
Enzyme treatment	E1	6.16± 0.32 A	3.40±0.24 A	2.76± 0.12 A
	E2	6.84±0.32 A	3.82±0.26 ?	3.01± 0.10 A
Overlap	E1xF1	5.83±0.27 in	3.05±0.10 b	2.77±0.22 A
	E2xF1	6.23±0.38 App	3.27±0.30 App	2.96±0.11 A
	E1xF2	6.50± 0.57 Ab	3.75±0.43 App	2.75± 0.15 A
	E2xF2	7.45±0.36 A	4.38± 0.25 A	3.07± 0.18 A

•The total number of experimental units is 20 (5 per transaction.(

•Values represent averages ± standard error

•Adjectives that carry different letters within the same row are significant at the level of (P≤0.05(

F1 = Group 1: Animals were raised under the specified breeding system (3.5% of live body weight) and were given a diet consisting of (50% reed + 50% concentrate) without enzymes, F2 = The second group: the animals were raised under the open breeding system and were given a diet consisting of (50% reed + 50% concentrate) without enzymes, E1 =The third group: the animals were raised under the specified breeding system (3.5% of the live body weight) and were given a diet consisting of (50% reed + 50% concentrate) with the addition of enzymes, E2 = The fourth group: the animals were raised under the open breeding system and were given a diet consisting of (50% reed + 50% concentrate) with the addition of enzymes. E1xF1= Interference between the specified feeding system 3.5% non-coefficient and the specified

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system 3.5% coefficient. E2xF1 = Interference between the 3.5% non-treated specific feeding system with the open enzyme coefficient feeding system. E1xF2=Interference between the non-enzyme-treated open feeding system with the specified feeding system 3.5% (enzyme-comodulated). E2xF2=Interference between the untreated open feed system and the open-enzyme feeding system.

Urea, glucose and creatinine

The results of the statistical analysis of the first draw (45 days of the experiment's age) showed a table below and that there is a significant superiority at the level of (P≤0.05) for the studied traits, in the characteristic of urea the results showed a decrease in the fourth treatment (E2) from the rest of the three treatments, and the results of the glucose trait showed a decrease in the third treatment (E1) for the rest of the three transactions. As for creatinine, the results indicated that there was no significant superiority between the four treatments.

The results of the statistical analysis for the interference also showed a decrease in the interference (E2 * F2) from the rest of the interactions, where (E1 * F2) exceeded the rest of the interactions for the urea characteristic, as for the glucose trait, the results indicated that no significant superiority was recorded, as well as for the creatinine trait, no significant superiority was recorded. The low level of urea in the blood serum of animals treated with an enzyme may be attributed to the maximum use of protein digested by treated animals. As a result of the action of digestive enzymes added to the diet and converted into vegetable protein for the body.

Table 2.Effect of Feeding System and Treatment with Fiber-Hydrolyzed Enzymes on Urea and Glucose

Factors	Transactions	Epithets Urea	Glucose	Creatinine
		First draw 45 days		
Feeding	F1	67.60±4.25 ?	26.75±2.59	0.54± 0.03 A
system	F2	69.50± 4.28 A	3.63 ± 29.56	0.65±0.05 A
Enzyme	E1	74.90± 4.15 ?	23.70±2.35 b	0.62±0.04 A
treatment	E2	62.20±3.23 b	32.61±3.22 A	0.57± 0.04 A
	E1xF1	71.20±6.02 Ab	23.50±3.10 A	0.58±0.05 A
Overlap	E2xF1	64.00±6.22 App	30.00±3.90 A	0.51±0.02 A
	E1xF2	5.88 ± 78.60 ?	23.90± 3.90	0.66±0.07 A
	E2xF2	60.40±2.56 b	35.22± 5.30 A	0.64± 0.08 A
Factors	Transactions	Second draw 90 days		
Feeding	F1	80.95± 1.96 A	33.09±0.88	0.84±0.04 b
system	F2	88.56± 3.44	34.54± 1.64	1.04±0.07 A
Enzyme	E1	83.82±3.04	32.26± 1.24	0.85± 0.05 b
treatment	E2	85.69±3.07	35.37± 1.23	1.03±0.06 A
	E1xF1	79.52± 2.24	32.15±0.54 A	0.77±0.02 b
Overlap	E2xF1	82.38±3.36	34.02± 1.66	0.92±0.08 App
	E1xF2	88.12± 5.24 A	34.02± 1.66	0.93±0.10 App

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E2xF2	89.00± 5.06	36.71± 1.77	1.15±0.07 A

•The total number of experimental units is 20 (5 per transaction.(

•Values represent averages ± standard error

•Adjectives that carry different letters within the same row are significant at the level of (P≤0.05(

F1 = Group 1: Animals were raised under the specified breeding system (3.5% of live body weight) and were given a diet consisting of (50% reed + 50% concentrate) without enzymes, F2 = The second group: the animals were raised under the open breeding system and were given a diet consisting of (50% reed + 50% concentrate) without enzymes, E1 =The third group: the animals were raised under the specified breeding system (3.5% of the live body weight) and were given a diet consisting of (50% reed + 50% concentrate) with the addition of enzymes, E2 = The fourth group: the animals were raised under the open breeding system and were given a diet consisting of (50% reed + 50% concentrate) with the addition of enzymes. E1xF1= Interference between the specified feeding system 3.5% non-coefficient and the specified system 3.5% coefficient. E2xF1 = Interference between the 3.5% non-treated specific feeding system with the open enzyme coefficient feeding system. E1xF2=Interference between the non-enzyme-treated open feeding system with the specified feeding system 3.5% (enzyme-comodulated). E2xF2=Interference between the untreated open feed system and the open-enzyme feeding system.

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