



Comparative Study Between Cuminumcyminum Seeds and Hormonal Treatment for Induction of Fertile Estrous in Iraqi Lactating Ewes.

Shams AL-Deen, S.L

Department of Surgery and Obstetrics/ College of Veterinary Medicine/ Baghdad University/Baghdad/ Iraq.

AL-Hamedawi, T.M.

Department of Surgery and Obstetrics/ College of Veterinary Medicine/ Baghdad University/Baghdad/ Iraq.

ABSTRACT

The present study was performed on 36 lactating Iraqi ewes at 50 days postpartum and 4 fertile rams (aged 2-4 years old) in farm animals of Al-Musiab technical institute/AL-Forat AL-Awast university/Babylon province, these animals aged between 2-5 years old from November 2014 to July 2015. The animals were divided into four equal groups (9 ewes on each one) randomly according to the type of treatments. 1st group treated with vaginal sponges impregnated with 40 mg Medroxy progesterone acetate (MAP) for 12 days, immediately withdrawal injected intramuscular 500 I.U./M of pregnant mare serum gonadotropin (PMSG). 2nd group treated with Cumin seed 15 gm / orally (3% from 0.5 kg concentrate diet) daily from 12 days. 3rd group treated with 15gm / orally/ daily for 20 days, while 4th group untreated and considered as control group. All animals exposed to rams daily after end of treatment. The results obtained that the animals in 1st group record 100% as response animals compared with 2nd, 3rd and 4th group which record 77.7%, 88.5% and 77.7% respectively with best significant differences $p < 0.01$ related to the 1st group, but the duration of response was high significant differences $p < 0.01$ in the 1st, 3rd group compared with 2nd and 4th group, while the pregnancy rate was recorded superior significant differences $p < 0.01$ in 1st and 4th group compared with 2nd and 3rd group as well as the twinning rate was high in treated group either hormonal or by cumin seeds compared with control group. We concluded that they using hormonal treatment or cumin seeds 3% with different periods (12 or 20 days) was play important role for improvement reproductive performance in lactating Iraqi ewes include increasing of induction of fertile estrus, reduce of duration of response and pregnancy and twinning rate.

KEYWORDS

Lactating ewes, Cumin seeds, Fertile estrous.

Introduction:

Ewes is one of most imperative creature for Iraqi subjects because of debilitating meat of ewes contrasted and different creatures (1). Many studies include hormonal treatment (PMSG, hCG) for induction estrous and reduce anestrus period with vaginal sponge (MAP) in 20,40mg (2&3), however some of as of late studies relied on upon numerous plants (Gycyrrhizaglabra and Cuminumcyminum seeds) which change the richness in ranch creatures particularly sheep and goats (5&6) on account of their wholesome quality which contain proteins, starches, soaked fat, sugars, vitamins and minerals (7).

Orth (8) reported that they expanding in sertoli cells number because of round about impact of cumin seeds and may that because of the impact of cumin on L.H and F.S.H discharge. In Iraq AL-Jobory (5) reported that they utilization of cumin seeds in the eating regimen of Awassi ram sheep lead to increment in body weight and enhanced semen quality and sexual conduct, likewise in the ram study recorded that they increment in the rate of spermatozoa creation, number of leydig and sertoli cell because of cumin seeds has apotent androgenic action. The purpose of this study was to investigate the cumin seed effect on lactating Iraqi ewes fertility and which the role in increase pregnancy and twinning rate compare with hormonal treatment (MAP/40 mg and e CG/ 500I.U).

Materials and methods

The present study was performed on 36 lactating Iraqi ewes at 50 days postpartum and 4 fertile rams (aged 2-4 years old) in farm animals of Al-Musiab technical institute/AL-ForatAL-Awast university/Babylon province, these animals aged between 2-5 years old from November 2014 to July 2015. The animals were divided into four equal groups (9 ewes on each one) randomly according to the type of treatments. 1st group treated with vaginal sponges impregnated with 40 mg Medroxy

progesterone acetate (MAP)(Upjhon LTD, England)for 12 days, immediately withdrawal injected intramuscular 500 I.U./M of pregnant mare serumgonadotropin (e CG)(Intervet, Holland). 2nd group treated with Cumin seed(ASIA Pharmaceutical Industries,Syria) 15 gm / orally (3% from 0.5 kg concentrate diet) daily from 12 days. 3rd group treated with 15gm / orally/ daily for 20 days, while 4th group untreated and considered as control group. All animals exposed to rams daily after end of treatment for detected the estrous behavior and natural mating. Response of animals (showing estrous behavior), duration of response, pregnancy and twinning rate was recorded. Statistical analysis include mean, standard error, Chi-sequire, F-test and Analysis of variance.

Results and Discussion.

The outcomes were revealed in table -1- which obtain the type of treatment and response of animals to their treatment. Consequences of the first gathering show that utilizing vaginal sponge impregnated with 40 mg of MAP for 12 days withdrawal quickly infused in day 12 with 500 I.U/ PMSG/ I.M in one measurement was exceptionally powerful and the reaction was 100% (9/9), while alternate gatherings records 77.7% (7/9), 88.8% (8/9) and 77.7% (7/9) in the 2nd, 3rd and 4th gatherings individually, however the best results were recorded high huge contrasts ($p < 0.01$) in the first gathering contrasted and different gatherings, additionally the 2nd gathering which treated with 15 gm cumin seeds/ orally/ for 12 days and 4th gathering (control bunch) recorded predominant critical contrasts ($p < 0.01$) better than 3rd gathering which treated with (5 gm of cumin seeds/ orally/ for 12 days. These observing that they related with hormonal treatment MAP + PMSG are in concurrence with numerous creators in Iraq and different nations (3, 9, 10&11) which recorded the reaction between 85-100% amid your studies. Anyway, the reaction in 2nd and 3rd gathering was not recorded in Iraq or different nations because of this study was the first trail to know the

impact of cumin seeds on fruitfulness in ewes. The outcomes in table -1- demonstrate the term of reaction in diverse gatherings (period between initiating treatment to estrus conduct indicating) and recorded 3.24 ± 1.16 days, 34.62 ± 6.57 days, 11.52 ± 2.31 and 74.36 ± 10.42 days in the 1st , 2nd , 3rd and 4th gatherings separately, yet the 1st gathering was recorded unrivaled noteworthy ($p < 0.01$) contrasted and different gatherings, additionally the 2nd gathering record huge contrasts ($p < 0.01$) contrasted and 2nd and 4th gathering not with standing same best critical contrasts somewhere around 2nd and 4th gathering. The term of response related with hormonal treatment was the best and these discovering concurrence with numerous creators (2,12&13) who recorded 3-6 days, while the span in 2nd and 3rd gathering was more than in 1st gathering and ideal with 4th gathering (control group), this may be have to long stretch to expanded amassing of F.S.H and L.H in blood gradually, these finding in concur with Orth (8) and Boskababyetal (14). The pregnancy rate in table -2- demonstrated 100% (9/9) , 85.7% (6/7) , 87.5% (7/8) and 100% (7/7) in the 1st , 2nd ,3rd and 4th gathering separately, while these outcome recorded predominance contrasts ($p < 0.01$) for 1st and 4th gathering contrasted and 2nd and 3rd gathering, yet the 2nd and 3rd gathering was no recorded any critical contrasts between of its . This outcomes in concurrence with numerous creators which reported a better general origination rate was happened by utilizing e CG and recorded 80-100% in diverse studies (11&15). While this studies related with utilizing cumin seeds for development ripeness in ewes was obscure. Also the twinning rate recorded 22.3% , 23.07% in 1st and 2nd + 3rd group respectively , these findings agree with 16 and 20. Which recorded 20-25% by using MAP + e CG, while increase in twinning rate by using cumin seeds due to the role of common for secretion F.S.H and L.H by indirect effects (8&14). It was concluded for this study that they using hormonal treatment or cumin seeds 3% (12 or 20 days) play important role for improvement reproductive efficiency in Iraqi lactating ewes.

Table (1): The type of treatment , Response animals, duration of response in Iraqi lactating ewes.

Groups	No. of animals (ewes)	Type of treatment	Animal response (estrus show)		Duration of response (days) M ± SE
			NO.	%	
G1	9	Vaginal sponge (MAP) 40 mg for 12 days + 500 I.U PMSG/ LM	9	100 a	3.24 ± 1.16 a
G2	9	15 gm(3% from 0.5/kg conc. Diet) / Cumin seeds /orally/ 12 days	7	77.7 c	34.62 ± 6.57 c
G3	9	15 gm / Cumin seeds/ orally/ 20 days	8	88.8 b	11.52 ± 2.31 b
G4	9	Control group with out treatment	7	77.7 c	74.36 ± 10.42 d
Total	36	-	Treated 24/27 88.8% Control 7/9 77.7%		-

Different letters mean sig differences ($p < 0.01$)

Table (2): The pregnancy rate, nature and type of parturition.

Groups	Animal response	Pregnancy rate		Nature of parturition		Type of parturition	
		NO.	%	N	D	S	T
				%	%	%	%
G1	9	9	100 a	8	1	7	2
				88.8	11.2	77.7	22.3
G2	7	6	85.7 b	6	-	5	1
				100		83.3	16.7
G3	8	7	87.5 b	6	1	5	2
				85.7	14.3	71.4	28.6
G4	7	7	100 a	6	1	7	-
				85.7	14.3	100%	
Total	31/36	29/31	93.5	26/29	3/29	Treated 17/22	Treated 5/22
	86.1%	22/24	91.6%	89.6	10.4	77.2	22.8%

Different letters mean sig. differences ($p < 0.01$).

REFERENCES

1- AL-Saigh, M.N. and AL-Kauzai, A.A. (2010). Some factors affecting mating and post lambing behavior trials and gestation length of Arabia sheep –J- Agric. Sci., 3:13-20. | 2- Kridli, R.T and AL-Khetib, S.S. (2006). Reproductive responses in ewes treated with e CG or increasing doses of royal Jelly. Anim. Reprod. Sci. 92:75-85. | 3- Amer, H.A. and Hazzaa, A.M (2009). The effect of different progesterone protocols on the reproductive efficiency of ewes during the non-breeding season. VeterinarskiArhiv 79(1), 19-30. | 4- Lauger, R.E. (1998). Herb of the Month: Licorice (GlycyrrhizaGlabral show bound herbals, p.2. | 5- AL-Jobory, T.N. (2011). Effect of vasectomy and/or Adding CuminumCyminum seeds in The diet of Awassi Ram Lambs on their performance and carcasses assessments.PHD thesis, College of vet. Med. Baghdad University | 6- Thippeswamy, N.B. and Nadiu, K.A. (2005). Antioxidant potency of cumin varieties cumin black cumin and bitter cumin on oxidant systems. Eur. Food Res. Technol.; 2/20: 472-476. | 7- Zolleh, H.H.; Bahraminejad, S.; Malek, G. and Pazan, A.H. (2009). Response of Cuminumcyminum L. to sowing date and plant density. Res. J. Agric and Biol. Sci. , 5,(4)21-23. | 8- Orth, J.M. (1984). The role of follicle stimulating hormone in controlling sertoli cell proliferation in testes of fetal rats. Endocrinol.; 115: 1248-1255. | 9- AL-Wahab,M.H, Badawi,F.A. and Mahmood, M.K. (2003). Effects of progesterone – PMSG Administration on lambing Rate and prolificacy of AwassiSheep . J. Anim. Vet. Adv. 2(9):512-518. | 10- Zeleke, M.; Greyling, J.P.C.; Schwalbch, L.M.J.; Muller, T.; Erasmus, J.A.(2005). Effect of progestagen and PMSG on estrous synchronization and fertility in Darper ewes during the transition period. Small Ruminants Res. 56:47-53. | 11- Najafi, G.; Cedden, F.; Kohram, H.; Sulu, N.; Dellal, G. and Bohlooli, S. (2012). Effect of various Doses of PMSG Administration on Reproductive performance in Ghezel sheep of Iran. Anim. Biol. Res. 3 (7): 3300-3304. | 12- Rosa, H.J.D. and Bryant, M.J. (2003). Seasonality of reproduction in sheep Small Ruminant Research 48:155-171. | 13- AL-Hamedawi, T.M, Khammas, D.J. and AL-Ubaidi, A.S. (2002). Effect of estrous synchronization on vaginal Flora and Subsequent Fertility in ewes. Iraqi . J. Vet. Sci., 16(1): 73-79. | 14- Boskababy,M.H.; Kiani,S. and Aziz,H. (2003). Relaxant effect of CuminumCyminum on gainea pig tracheal chains and its possible mechanism. Indian.J. of Pharm. Society; 37(2); 111-115. | 15- Metodiev, N. and Raicheva, E. (2011). Effect of the short- Term Progestagen Treatment plus PMSG prior Ram Introduction on the Estrus Synchronization and The Fertility of ILE DE France. Ewes. Biotechnology in Animal Husbandary 27 (3), P 1157-1166.