

Clinical Efficacy of Injectable Herbal Heat Inducer in Anoestrous Murrah Buffaloes

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ABSTRACT

Comparative study was made on Murrah buffaloes with three treatment regimes (Group- 1. mineral mixture with COFECU tablet daily, Group-2. injectable herbal heat inducer (5ml i/m), Group-3. mineral mixture, COFECU and injectable herbal heat inducer (a preparation of Indian herbs), Group 4. control without any treatment) to find the efficacy of drugs to induce estrous in post partum anoestrous animals. It was observed that the highest percentage (62.5) of animals exhibited estrous in group 3 followed by group 2. (50 %) and group 1. (12.5 %). None of the animals were found to be in estrous in control group. Analysis of different blood parameters showed significant difference ($p < 0.05$) for total protein, cholesterol, calcium, phosphorus and manganese where as it was highly significant ($p < 0.01$) for copper, zinc and iron between before and after treatment for group 3. No significant difference was observed in any of the blood parameters in control group except copper. Therefore, it may be concluded that induction of estrous in buffaloes may be hastened with oral provision of mineral mixtures along with the injectable herbal heat inducer.

Key words: Anoestrus, Estrous induction, Herbal heat inducer, Post partum.

INTRODUCTION

Post partum anoestrous especially during summer season is the most common infertility problem observed in buffaloes causing a great economic loss to the dairy industry. Post partum anoestrous period leads to prolonging inter-calving period and thus reduces the reproductive life. It is usually due to nonfunctional ovaries and is affected by suckling, lactation, season and nutrition. Despite multiple etiologies, use of hormonal preparation in the management of anoestrous syndrome is wide spread. Hormonal preparations are costly, cause hyper-stimulation of ovaries leading to multiple ovulations and are not easily available particularly in rural areas. Again, herbal preparations to induce estrous in animals are advantageous due to their less cost,

effectiveness and easy availability in recent times. Oral herbal preparations such as Aloes compound (Gangadhar *et al.* 1999), Estrona forte and Prajana capsules (Wale *et al.* 2000), Sajani capsules (Mukane *et al.* 1999) and Janova capsules (Ahmed *et al.* 2003) have been tried with variable results. Thus, the present investigation was planned to evaluate the therapeutic efficacy of one injectable herbal heat inducer (prepared by The Indian Herbs) preparation either alone or in combination with mineral supplementation for better management of post partum anoestrous in Murrah buffaloes.

MATERIALS AND METHODS

A total of thirty two (3 treatment and a control group of 8 animals each) Murrah buffaloes of 3-6 years of age with history of post partum anoestrous for more than three months were selected for the study during April to July after per-rectal examination of their ovary in State Livestock Farm, West Bengal Government, Kalyani. Animals were dewormed with single dose of Albendazole prior to the study.

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Animals of the treatment groups i.e. group 1 (50g mineral mixture with one COFECU tablet daily), Group-2. (Injectable herbal heat inducer, 5 ml i/m), Group-3. (50g mineral mixture, one COFECU tablet and 5ml i/m injectable herbal heat inducer) and control (without any treatment) were maintained with normal diet and management condition throughout the experiment period. Injectable herbal heat inducer is a preparation manufactured by The Indian Herbs Research & Supply Co. Ltd, Saharanpur which a herbal product specifically developed for inducing ovulatory oestrous in anoestrous heifers and post partum cows and buffaloes. Animal exhibiting oestrous in different groups were inseminated and status of pregnancy were confirmed after two months of post insemination. Blood samples of animals were collected before and after treatment and were analyzed for total protein, cholesterol, calcium, phosphorus, manganese, copper, zinc and iron status in serum. Efficacy of the treatments was observed by percentage of conception and change of blood parameters.

RESULTS AND DISCUSSION

Efficacy of herbal heat inducer as alone or in combination was observed in terms of induction of estrous and subsequent conception rate (table 1). Only 12.5 % exhibition of estrous with 21 days of estrous interval and cent percent conception was found in the animals treated with mineral mixture and COFECU tablet (Gr 1) which is lower (80 %, 12 day and 60 % respectively) than that observed by Jain *et al* (2003) in cows. The lower values might be due to the effect of hot summer as the buffaloes are sexually activated by decreased day length and temperature. True anoestrosity due to total ovarian inactivity is also more common buffaloes during summer as compared to autumn and winter (Singh *et al* 1984). Half of the animals (50 %) treated with only injectable herbal heat inducer (Gr 2) exhibited estrous with a mean estrous interval of 12 ± 1.77 days and 50 % conception. This is in close agreement with the findings of Wale *et al.* (2000) whose study with Estrona forte tablet (a herbal product) in post partum buffaloes showed onset of estrous in 50 % animals with 13.30 days of estrous interval and 71.42 % of conception rate. However, during the present experiment animals treated with the combination of injectable herbal heat inducer, mineral mixture and

COFECU tablet (Group 3), the percentage of animals exhibiting estrous was 62.5 with mean estrous interval of 10.00 ± 1.81 days and there was 60 percent conception rate which is better than any other group. This finding is well corroborated with the findings of Deshpande *et al.* (2000) who observed 90 % of estrous induction and 66.66 percent of conception with Aloes compound. Also Kabir *et al.* (2001) reported that combination of *Abroma augusta* and *Nigella sativa* (two herbal compounds) in 2:1 ratio could induce ovulatory heat in 50 percent acyclic buffaloes with 12.00 ± 1.73 days of estrous interval. The control animals studied in this present investigation showed very poor result as no animal exhibits estrous symptom during the period under study.

The estimates of some biochemical profiles of different groups of buffaloes under study with a test of significance between before and after treatment is presented in table 2. It was observed that highly significant ($p < 0.01$) differences were observed between the animals before and after treatment in respect to total protein, calcium, manganese & zinc (Gr 1), copper & Zinc (Gr 2) and copper, zinc & iron (Gr 3), whereas no significant difference was observed in control animals. The present finding agrees with that of Jain *et al.* (2003) who observed a significant increase of serum mineral (Ca, P, Cu, Zn and Mn) levels of cows during estrous phase when supplemented with Sakas mineral mixture. However, effect of injectable herbal heat inducer on blood profile of the animals under present investigation is not clear and needs more investigation.

Various herbal and hormonal therapies are usually advocated in anoestrus cows and buffaloes where nutritional factors are ruled out (Markandeya and Kulkarni, 2003). Till now, the commonly marketed herbal products were either in the form of liquid, powder or capsule used as oral medication. One of which Prajana (Indian Herbs) has long been introduced in veterinary practice for treating anoestrus in cows and buffaloes. Besides herbal products, hormonal medications like GnRH (Pattabiraman *et al.* 1986) and PGF₂alpha (Mohanty *et al.* 2003) were used successfully in cattle and buffaloes for induction of estrous and subsequent conception. The oral medication of herbal drugs has an inherent difficulty that they neither may nor reach the site of action in reproductive system in full concentration after passing through rumen and

Parameter	Before treatment	After treatment
Total protein (g%)		
Cholesterol (mg %)		
Calcium (mg %)		
Copper (mg/dl)		
Zinc (mg/dl)		
Manganese (mg/dl)		
Iron (mg/dl)		

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Table 1. Estrous behavior and conception rate observed in the animals under different groups of treatment

Group	Number of animals	No. of animals exhibiting estrous	Percentage of animals in estrous	Time interval for induction of estrous (days)	Conception rate (%)
1	8	1	12.5	21	100
2	8	4	50.00	12 ± 1.77	50
3	8	5	62.5	10 ± 1.81	60
control	8	0	0	0	0

Table 2. Estimates of some blood bio-chemical profiles of different groups of buffaloes before and after treatment.

Parameter	Group 1			Group 2			Group 3			Control		
	B.T	A.T.	't'	B.T	A.T.	't'	B.T	A.T.	't'	B.T	A.T.	't'
Total protein (g%)	7.94 ± 0.23	8.69 ± 0.28	-3.59**	7.92 ± 0.50	9.73 ± 0.23	-5.19*	8.05 ± 0.36	9.76 ± 0.28	-3.32*	8.07 ± 0.22	8.01 ± 0.17	0.41
Cholesterol (%)	122.25 ± 8.44	135.88 ± 11.10	-1.58	121.00 ± 14.60	166.50 ± 6.60	-4.67*	128.60 ± 11.71	168.80 ± 4.48	-3.19*	109.75 ± 4.77	108.62 ± 6.47	0.20
Urea (mg %)	8.91 ± 0.29	9.25 ± 0.31	-4.09**	9.14 ± 0.54	10.29 ± 0.19	-3.20*	8.50 ± 0.36	10.04 ± 0.13	-3.17*	8.64 ± 0.37	8.80 ± 0.27	-0.39
Glucose (mg %)	4.19 ± 0.17	4.40 ± 0.14	-3.02*	4.55 ± 0.23	5.72 ± 0.38	-5.21*	3.90 ± 0.11	4.84 ± 0.17	-3.53*	4.01 ± 0.11	4.09 ± 0.11	-0.70
Albumin (µg/dl)	37.09 ± 2.15	38.40 ± 2.23	-4.95**	36.43 ± 2.10	47.03 ± 2.07	-4.66	34.68 ± 2.38	45.01 ± 2.22	-3.73*	36.35 ± 2.64	37.29 ± 3.19	-0.46
Alb (µg/dl)	113.21 ± 6.51	120.81 ± 7.39	-2.69*	114.85 ± 9.56	138.63 ± 7.49	-6.73**	102.70 ± 6.06	116.35 ± 8.06	-5.01**	114.16 ± 7.15	108.54 ± 6.82	2.59*
Alb (µg/dl)	173.88 ± 4.08	179.00 ± 4.65	-4.37**	160.00 ± 3.14	198.25 ± 3.04	79.90**	181.40 ± 2.77	195.80 ± 3.06	-7.54**	172.37 ± 5.90	168.87 ± 6.00	1.53
Alb (µg/dl)	130.25 ± 10.87	129.50 ± 11.96	0.20	127.00 ± 15.16	169.25 ± 8.11	-5.10*	135.40 ± 12.25	162.60 ± 9.76	-5.46**	130.12 ± 7.92	126.00 ± 5.59	1.31

B.T. : Before treatment

A.T. : After treatment

* (p<0.05)

** (p<0.01)

hence the individual response may vary. On the other hand the injectable herbal heat inducer used in the present investigation can reach the reproductive system in full concentration for consistent and uniform results. Moreover, it is safe and likely to be very economical as compared to hormonal preparations and without any adverse affect to the animal.

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REFERENCES

- Ahmed, F. A., Tamuli, M. K. and Akhtar, F. (2003) Effect of Placentrix and Janova in induction of oestrous in anoestrous crossbred cattle. *Indian Vet. J.*, **80**: 1077-79.
- Deshpande, R. S., Dhoble, R. L. and Sawale, A. G. (2000) Efficacy of indigenous drugs in the treatment of post partum anoestrus in buffaloes. *The Indian J. Anim. Reprod.* **21**(2):115-16.
- Gangadhar, M. A., Krishna, T. G., Rao, A. T. and Babu, D. S. (1999) Aloes compound (vet) as a fertility promoting agent in buffalo heifers. *Indian Vet. J.* **76** (2): 148-149.

- Jain, A., Pathak, R. K. and Jain, P. K.(2003) Effect of mineral supplementation on fertility of cross bred cows. *Indian Vet. Med. J.* 27: 259-60.
- Kabir, K.K., Varshney, J. P., Rawal, C. V. S., Srivastav, R. s. and Ansari, M. R.(2001) Comparative efficacy of herbal preparations in the management of anoestrous in nondescript rural buffaloes. *The Indian J. Anim. Reprod.* 22(2): 143-45.
- Markandeya, N. M. and Kulkarni, S. S.(2003) Therapeutic consideration of anoestrous. An Over view. *Pashudhan* 18(6):3.
- Mohanty, L. D., Mishra, P. C. and Pradhan, S. (2003) Improving fertility in Holstein Freisian hard by single dose prostaglandin injection through Volvo-vaginal sub mucosal route. *Indian j. Anim. Reprod.* 24(2):171.
- Mukane, S. M., Dhoble, R. L. and Babar, P. V. (1999) Studies on induction of estrous and ovulation by using Sajani in post partum anoestrus Surti and Murrah buffaloes. *Abst. XV Annual Convention and National Symposium on Biotechniques in optimizing fertility in farm animals.* Feb. (10-12), 42.
- Pattabiraman, S. R., Veerapandian, C. and Quayam, S. A. (1986) Effects of Receptal treatment in anoestrous and early post partum cows and buffaloes. *Indian Vet. J.* 63(5):409-413.
- Singh, G., Singh, G. B. and Sharma, R. D. (1984) *Theriogenology*, 21; 849-58. [Cited in Tanwar, P. S., Rakha, N. K. and Phogat, J. B.. *Challenges in buffalo infertility. Intas Polivet* 4 (11): 121-27.]
- Wale, V. R., Dhavale, P. K., Sawale, A. G. and Dhoble, R. L. (2000) Clinical efficacy of Estrona Forte and Prajana for induction of estrous in anoestrous buffaloes. *XVI Annual Convention and National Symposium on Reproduction Management for Optimizing Production from Livestock. Abst. Nov. (6 - 7):45.*

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