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Herbal treatment of anestrus in buffalo

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Abstract

A total of 24 anestrus buffaloes were divided in three groups with equal number of heifer and parous buffalo cows. Animals in group I were treated with fenbendazole and mineral mixture supplementation. Additionally, group II cows received utero-ovarian massage thrice on weekly basis while the group III animals received an herbal formula along with the utero-ovarian massage. Group III animals responded way better than the other groups with 75% success rates. However, the study needs to be replicated on a greater population with the involvement of advanced techniques like ultrasonography to reach to a conclusive statement.

Keywords: Herbal treatment, anestrus, buffalo

Introduction

Survival of a species is significantly dependent on the phenomena of reproduction and in farm animals; anestrus is a major limiting factor. It is the functional disorder of reproductive cycle where the animal fails to exhibit the overt signs of estrus. Expression of estrus is influenced by improper nutrition, season, stress, uterine pathologies, faulty management practices, etc. In general, its incidence in India ranges from 9.09-82.5% in buffaloes depending on the season and region being recorded (Kumar *et al.*, 2014) [13]. Incidence of anestrus in heifers is lesser than the adult buffaloes (Bharkad and Markandeya, 2003) [15]. It leads to prolongation of inter-calving interval and dairy farms incur huge economic losses in terms of reduced calf crop, decreased lifetime milk yield, treatment costs and the replacement costs. Dairy buffaloes lose an average sum of Rs. 372.90 per animal on daily basis to anestrus (Kumar *et al.*, 2013) [16]. Various hormonal and non-hormonal compounds have been extensively used by various coworkers with varying success rates (Deshpande *et al.*, 2000 [18], Agarwal *et al.*, 2001 [19], Kumar *et al.*, 2005) [17].

Deworming and supplementation of diet with a good quality mineral mixture are preferred to improve the health status of the animal. Utero-ovarian massage is the simplest, cheapest, oldest and effective method for the induction of estrus in anestrus animals (Rahawy, 2009) [20]. Estrus induction in bovines ranges between 40 to 80% following utero-ovarian massage either daily, on alternate day or weekly basis for 3-4 weeks (Mwaanga *et al.*, 2004 [23], Naidu *et al.*, 2009 [22], Gupta *et al.*, 2011). Its mechanism of action is not clearly known, however, may include activation of intrinsic ovarian factors; enhancement of local blood circulation increasing the availability of various hormones and growth factors; stimulation of local oxytocin production by the ovaries consequently influencing the local blood circulation and luteolysis, if CL is present (Romaniuk, 1973 [21], Lobb and Dorrington, 1992 [26], Monget and Monniaux, 1995 [25], Mwaanga *et al.*, 2010) [24].

Various plant based heat inducers have also been used for the treatment of anestrus animals being the rich source of vitamins and minerals while some having additional innate estrogenic properties (Kumar *et al.*, 2014) [13]. Many plants such as *Murraya koenigii* (curry leaves) (Kumar and Punniamurthy, 2009) [27], *Nigella sativa* (Kalonji) (Kabir *et al.*, 2001) [28], *Abroma augusta* (Ulatkambal) (Kabir *et al.*, 2001) [28], *Saraca asoca* (Ashoka) (Rajkumar *et al.*, 2008) [29], *Trigonella foenum-graecum* (Methi) (Rajkumar *et al.*, 2008 [29], Mishra *et al.*, 2002) [30], *Bambusa aruninacea* (bamboo) (Soumya *et al.*, 2016) [3], *Carica papaya* (papaya) (Nayak, 1995) [31], *Asparagus recemosus* (Shatavari) (Pandey *et al.*, 2018 [1], Bharti and Kumar, 2019), *Leptadenia reticulata* (jivanti) (Koradia, 1995; Dhalani and Nariya, 2017) [8], *Courupita guianensis* (Koradia, 1995), *Aegle marmelos* (bel) (Mehrotra, 2002) [2], *Semecarpus anacardium* (Bechardas, 1992) [4], cucumber leaves (Chander and Mukherjee, 1994) [14] and jute plant (Gupta, 1993) [5] either alone or in combinations have been fed to treat the anestrus animals with variable response on induction of estrus with variable success rates ranging between 40 and 85%.

Material and Method

The study was done on the cases entertained at the field level between the months of July, 2020 and January, 2021 in Hisar district of Haryana. A total of 12 heifer and 12 porous buffalo cows were selected based on per-rectal evaluation of genitalia and the associated history. The animals having small smooth ovaries and lacking any palpable luteal structure were selected for the study. All the selected animals were apparently healthy, above the age of 2.5 years and had a body condition score ranging between 2.5 and 3.5 on 5-point scale. The buffaloes were equally distributed in three groups and subjected to three different treatments. Table 1 shows the treatment protocol followed in the study and table 2 depicts the composition of herbal formula provided to animals in group III.

Evaluation of response was done on the basis of per-rectal examination, conducted after 15 days of initiation of treatment, and the routine follow-up provided by the animal owner.

Result and Discussion

Per-rectal examination of animals revealed the increase in size of ovaries and the uterus in responsive animals. Occurrence of estrus was considered after observation of the overt signs of estrus (vulvar swelling and vaginal discharge) by the owner. The results of the study are shown in Fig. 1. Group III animals treated with herbal formula showed three times better results,

both heifer and porous cows performing equally, than the group I animals.

The present study showed better estrus induction rates in anestrus buffalo in accordance with the previous studies. The positive effect of the formulation can be credited to the innate properties of herbs. Shatavari roots contain a wide variety of phytochemicals exerting the estrogenic activity on body. Shatavarin and Shatavaroside are the major steroidal saponins reported from the roots of the plant (Hayes *et al.*, 2006^[11]; Sharma *et al.*, 2009)^[10]. Additionally, the plant possess other qualities like antimicrobial, antioxidant and immunomodulatory activities and exhibiting positive effect on the overall growth of the body (Bharti and Kumar, 2019). Jivanti is also rich in various phytoconstituents namely ferulic acid, β -sitosterol, diosmetin, stigmasterol, rutin, β -amyrin, α -amyrin, simiarenol, hentriacontanol, Reticulin, Deniculatin, Leptaculatin (Krishna *et al.*, 1975^[6]; Sastry *et al.*, 1985)^[7]. These compounds lead to generation of estrogenic, antimicrobial and anti-inflammatory properties (Dhalani and Nariya, 2017)^[8]. Flax seeds are a very rich source of omega-3 fatty acids which promotes the synthesis of prostaglandin E2 with resultant luteotropic action and uterine health management. Gulkand, also known as rose petal jam, is very beneficial to the overall growth and development of body owing to its antibacterial, antioxidant, anti-inflammatory and cardiotoxic properties and is commonly being used by women suffering from spasmodic dysmenorrheal (Singh, 2014)^[12].

Table 1: Treatment protocol

Treatment	Dosage Regimen	Group I (N=8)	Group II (N=8)	Group III (N=8)
Deworming (Fenbendazole)	3gm P.O. once	+	+	+
Mineral mixture	50gm P.O. B.I.D.*15 days	+	+	+
Salt	25gm P.O. B.I.D.*15 days	+	+	+
Utero-ovarian massage	Weekly once (day 0, 7, 14)	-	+	+
Herbal formulation	50gm P.O. B.I.D.*15 days	-	-	+

Table 2: Composition of herbal formulation

Sr. No.	Common Name	Scientific name	Quantity (parts)
1	Shatavari	<i>Asparagus racemosus</i>	250gm (1 part)
2	Jivanti	<i>Leptadenia reticulate</i>	250gm (1 part)
3	Flaxseeds	<i>Linum usitatissimum</i>	500gm (2 part)
4	Gulkand	<i>(Rosa indica)</i>	500 (2 part)

1, 2, 3- ground to fine powder

Mix with Gulkand and store in cool and dry place

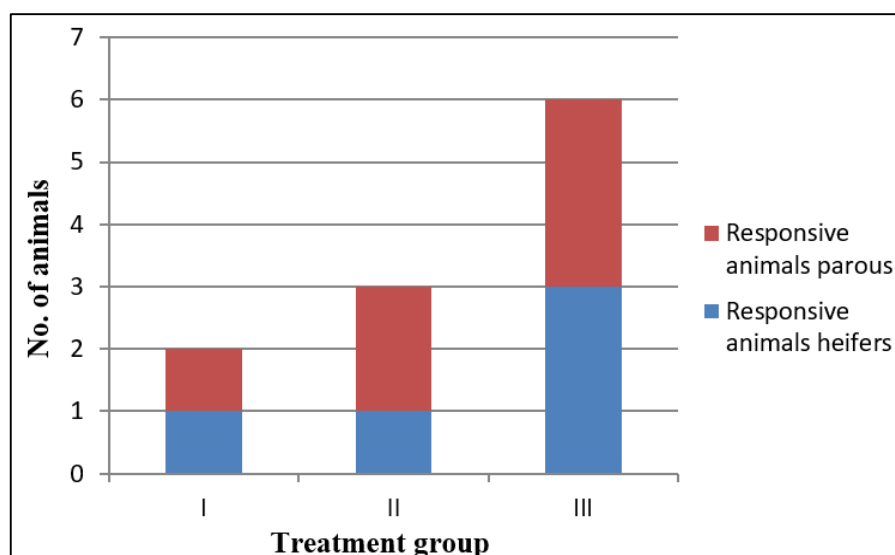


Fig 1: Responsive animals in various treatment groups

Conclusion

Supplementation of herbs like Shatavari and Jivanti helps in resumption of cyclicity in the anestrus buffaloes with good success rates. However, to reach a conclusive result, this study needs to be replicated on a large number of animals and the use of advanced technology like ultrasonography is also required.

References

- Pandey AK, Gupta A, Tiwari M, Prasad S, Pandey AN, Yadav PK, *et al.* Impact of stress on female reproductive health disorders: Possible beneficial effects of shatavari (*Asparagus racemosus*). *Biomedicine & Pharmacotherapy*. 2018;103:46-49
- Mehrotra S. Studies on ovarian function using certain medicinal plants in rats, goats and cattle. Ph.D. Thesis submitted to IVRI Izatnagar, Bareilly, 2002.
- Soumya V, Muzib YI, Venkatesh P. A novel method of extraction of bamboo seed oil (*Bambusa bambos* Druce) and its promising effect on metabolic symptoms of experimentally induced polycystic ovarian disease. *Indian J Pharmacol*. 2016;48(2):162-167. DOI: 10.4103/0253-7613.178833
- Bechardas PK. Imparting puberty. *Honey Bee*. 1992;3(2):22.
- Gupta SL. Traditional Agricultural Knowledge and its Rationality in Kharwar community of Varanasi District (UP). Ph.D. thesis submitted to Banaras Hindu University, Varanasi, 1993.
- Krishna PVG, Venkata RE, Venkata RD. Crystalline principles from the leaves and twigs of *Leptadenia reticulata*, *Planta Med*. 1975;27:395-400.
- Sastry BS, Vijayalaxmi T, Venkata RD, *et al.* Chemical constituents of stem bark of *Leptadenia reticulata*, *Ind Drug*. 1985;22:612-2.
- Dhalani JM, Nariya PB. A Pharmacological review: *Leptadenia reticulata* (Wight & Arn.); Jivanti: The real life giving plant. *Folia Medica*. 2017;59(4):405-412. DOI: 10.1515/folmed-2017-0055
- Bharti J, Kumar S. Shatavari (*Asparagus racemosus*). *Phytobiotics and Animal Production*. 2021;567-590.
- Sharma U, Saini R, Kumar N, Singh B. Steroidal saponins from *Asparagus racemosus*. *Chemical and Pharmaceutical Bulletin*. 2009;57(8):890-3.
- Hayes PY, Jahidin AH, Lehmann R, Penman K, Kitching W, De Voss JJ. Asparinins, asparosides, curillins, curillosides and shavatarins: Structural clarification with the isolation of shatavarin V, A new steroidal saponin from the root of *Asparagus racemosus*. *Tetrahedron Letter*. 2006;47:8683-8687.
- Singh J. *Gulkand Health Benefits & Disadvantages*. Ayur times, 2014.
- Kumar PR, Singh SK, Kharche SD, Chethan Sharma G, Behera BK, Shukla SN, *et al.* Anestrus in cattle and buffalo: Indian perspective. *Adv. Anim. Vet. Sci*. 2014;2(3):124-138.
- Chander M, Mukherjee R. Traditional Agricultural and Animal Husbandry Practices for Sustainable Agriculture in Kumoun Hills of Uttar Pradesh. *Journal of Rural Development (NIRD)*. 1994;13(3):443-449.
- Bharkad GP, Markandeya NM. Incidence of bovine anoestrus. *Indian Vet. J*. 2003;80:190-191.
- Kumar PR, Shukla SN, Purkayastha RD. Economical analysis of the estimated cost of management of anestrus buffaloes under field conditions using different hormonal and non-hormonal strategies. *J Anim. Health Prod*. 2013;1(4):39-41.
- Kumar S, Misra AK, Singh M. Induction of estrus in post-partum anestrus cows with Creastar, GnRH and hCG. *Indian J Anim. Sci*. 2005;75:22-24.
- Deshpande RS, Dhoble RL, Sawale AG. Efficacy of indigenous drugs in the treatment of post-partum anoestrus in buffaloes. *Indian J Anim. Reprod*. 2000;21:115-116.
- Agarwal SK, Shanker U, Kumar S, Mohan G. Ovarian cyclicity and progesterone profile in post-partum anoestrus cattle using synthetic progesterone, norgestomet regime. *Indian J Anim. Sci*. 2001;71:1120-1123.
- Rahawy MA. Treatment of anestrus in buffalo cows by massaging the uterus and ovaries rectally. *Iraqi J Vet. Sci*. 2009;23(1):23-25.
- Romaniuk J. Treatment of ovarian a function in cows. *Medycyna Vet*. 1973;29:296-298.
- Naidu GV, Srinivas M, Krishna HNVV, Prasad DV. Management of delayed puberty in graded murrha heifers under field conditions: A practical approach. *Buffalo Bull*. 2009;28(4):204-206.
- Mwaanga AA, Zdunczyk S, Janowski T. Comparative study on the efficacy of hormonal and non-hormonal treatment methods in ovarian a function affected dairy cow. *Bull. Vet. Inst. Pull*. 2004;48:265-267.
- Mwaanga ES, Janowski T, Zdunczyk S, Simukoko H. Ovarian massage: A simple, but useful tool to manage ovarian acyclicity in dairy cows. *Bull. Anim. Health Prod. Afr*. 2010;58:294-295.
- Monget P, Monniaux D. Growth factors and control of folliculogenesis. *J Reprod. Fert*. 1995;49:321-333.
- Lobb DK, Dorrington J. Intraovarian regulation of follicular development. *Anim. Reprod. Sci*. 1992;28:343-354.
- Kumar S, Punniamurthy N. Estrus induction by supplementation of *Murraya koenigii* in anestrus heifers. *Indian J Anim. Reprod*. 2009;30(2):66-67.
- Kabir KK, Rawal CVS, Ansari MR, Varshney JP, Srivastava RS. Comparative efficacy of herbal preparations in the management of anoestrus in non-descript rural buffaloes. *Indian J Anim. Reprod*. 2001;22(2):143-145.
- Rajkumar R, Srivastava SK, Varshney VP, Mahmood S. Effect of medicinal plants *Saraca asoca* and *Trigonella foenum-graecum* in anoestrus cows. *Indian Vet. J*. 2008;85(12):1281-1283.
- Mishra BP, Nayak N, Mishra D. Indigenous methods for animal health care. International seminar on traditional knowledge, health and environment, held during 23-24 February 2002, at Bhubaneswar, Abs, 2002, 124.
- Nayak DB. Inducing animal into heat-Feeding papaya fruits. *Honey Bee*. 1995;6(3):14.