



SHORT COMMUNICATION

Comparative Evaluation of the Efficacy of Herbal Regimen for the Treatment of Post-partum Anestrus in Water Buffaloes

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ABSTRACT

A study was undertaken to compare the efficacy of combinations of different brands of herbal uterine cleansers, estrus inducers and mineral supplements in the treatment of anestrus in water buffaloes. Thirty she-buffaloes with a history of anestrus were randomly assigned to either of five equal groups. Group T0 served as untreated control, Group T1 was treated with a combination of Exapar bolus (M/s Ayurvet Limited, India), Janova capsule (M/s Ayurvet Limited, India) and Mintrus caplet (M/s Ayurvet Limited, India). Group T2 was treated with AV/UTB/26 bolus (M/s Ayurvet Limited, India), AV/OIP/22 powder (M/s Ayurvet Limited, India) and Mintrus caplet. Group T3 was treated with a combination of Brands A, B and C. Group T4 was treated with a combination of Brands X, Y and Z. The best estrus response was recorded in the Group T2 and the highest conception rates in Groups T2 and T4. The time interval between treatment and onset of estrus was significantly lowest ($P < 0.05$) in Group T1 as compared to the other groups.

Keywords: Exapar, Janova, Mintrus, anestrus, buffalo, herbal

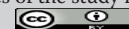
Of all the domesticated animals, the buffalo has the greatest unexplored potential for the development of milk yield, meat production and work output (Jyothi *et al.*, 2020). The buffalo plays a prominent role in rural economy, providing milk, meat and draft work-force (Hoffpauir, 1982). The increasing interest in buffalo rearing is primarily due to more desirable composition of buffalo milk in comparison to cow milk in terms of higher milk-fat content yet low cholesterol, higher total solids, SNF, proteins, calcium, phosphorus and calories per unit. Reproductive efficiency is the primary factor affecting productivity and is hampered by inherent late maturity, poor expression of estrus in summers, distinct seasonal reproductive patterns and prolonged inter-calving intervals in female buffalo (Singh *et al.*, 2000). Anestrus, defined as a prolonged period of sexual quiescence (Agarwal *et al.*, 2005), especially manifesting as post-parturient anestrus, is a major reproductive disorder in dairy animals (El-

Wishy, 2007). The present clinical trial was designed to compare the efficacy of some combinations of different brands of herbal preparations in post-partum anestrus in water buffaloes.

The present study was undertaken in and around Proddatur, Kadapa district, Andhra Pradesh. Thirty animals with a history of anestrus were identified and confirmed on the basis of clinical signs and per-rectal examination. Per-rectal examination was performed at 10 days interval

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beginning 90 days post-partum. The buffaloes were randomly allocated to either of five equal groups (Group T0-T4) and treated with different herbal regimens. Group T0 did not receive any treatment. Group T1 received a combination of Exapar™ bolus (M/s Ayurved Limited, India) @ 4 boli/day orally for 5 days (days 1-5 of parturition), Janova™ capsule (M/s Ayurved Limited, India) @ 3 cap/day for 2 days (days 6 and 7) and Mintrus® caplet (M/s Ayurved Limited, India) @ 1 caplet daily for 20 days (days 0-20). Group T2 received treatment with a combination of AV/UTB/26 bolus (M/s Ayurved Limited, India) @ 2 boli/day for 5 days (days 1-5 of parturition), AV/OIP/22 powder (M/s Ayurved Limited, India) @ 200g/day for two days (days 6 and 7) and Mintrus® caplet @ 1 caplet daily for 20 days (days 0-20). Group T3 was treated with a combination of Brand A @ 200 ml on the first day, followed by single 100 mL dose once daily for next 3 days, Brand B @ 3 cap/day for 2 days (days 6 and 7) and Brand C @ 1 tab daily for 20 days (days 0-20). Group T4 was treated with a combination of Brand X @ 200 mL on the first day, followed by 100 mL for 3 consecutive days (day 2-4 of parturition), Brand Y @ 2 boli once daily orally for 3 consecutive days (days 5-7) and Brand Z @ 1 caplet orally for 10 consecutive days. Parameters such as estrus response, estrus induction interval, conception rate, number of services per conception and nature of cervical discharge were studied.

The estrus response among the groups was recorded in the order T2 (6 of 6; 100%) > T4 (5 of 6; 83.33%) > T1=T3 (4 of 6; 66.67%) > T0 (1 of 6; 16.67%). Similarly, the conception rate was recorded in the order T2=T4 (4 of 6; 66.67%) > T1=T3 (2 of 6; 33.33%) > T0 (1 of 6; 16.67%). The estrus induction interval was recorded to be shortest and significantly different ($P < 0.05$) in the group T1, receiving treatment with a combination of Exapar, Janova and Mintrus (8.0 ± 0.81 days), as compared to the remaining groups (T0 = 27.0 ± 1.0 days; T2 = 27.33 ± 0.45 days; T3 = 28.25 ± 1.70 days; T4 = 22.6 ± 0.92 days). The average number of services per conception was recorded to be 1 in groups T0, T1 and T2, 1.6 in group T4 and 2 in group T3. The number of animals showing clear mucus discharge at estrus was in the order T1=T2=T4 (66.66%) > T3 (50%) > T0 (16.66%).

The combination of Exapar, Janova and Mintrus has previously also been shown to be efficacious in the management of different reproductive disorders in

buffaloes (Hadiya *et al.*, 2015). *Citrullus colocynthis*, a constituent ingredient of AV/OIP/22, is a rich source of flavonoids (Benariba *et al.*, 2013), isovitexin (Akhzari *et al.*, 2015), cucurbitacin (Hatam *et al.*, 1989) and caffeic acid (Shokrzadeh *et al.*, 2013). The improvement in the estrus response may be attributed to caffeic acid which is known to inhibit nuclear factor kappa B (Akyol *et al.*, 2015), a transcription factor which brings about changes in mRNA synthesis and has a negative effect on reproductive performance (Manimaran *et al.*, 2016). The improved estrus response may have also been brought about by the presence of flavonoids which are known to possess anti-oxidant property (Pietta, 2000) and improve reproductive health (Lessera *et al.*, 2015). Presence of isovitexin may also have played a significant role in accentuating the estrus response as it is known to possess free radical scavenging activity (Khole *et al.*, 2016) and neutralize the peroxy free radicals that hamper the proper functioning of the reproductive organs (Agrawal *et al.*, 2005). *Zingiber officinale*, also a constituent ingredient of AV/OIP/22, is known to possess anti-oxidant property (Ghasemzadeh *et al.*, 2010) and may aid in onset of ovulation in cows suffering from post-partum anestrus.

It could be concluded that Exapar-Janova-Mintrus protocol (Group T1) was effective at inducing estrus within short interval after initiation of treatment in water buffaloes suffering with post-partum anestrus and AV/UTB/26-AV/OIP/22-Mintrus protocol (Group T2) was found to be effective in giving optimum conception rate and estrus response in post-partum anestrus buffaloes.

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