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Efficacy of Estrous Synchronization protocols ovsynch and cosynch in kundhi buffalo heifers.

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Abstract:*The present research work was conducted to compare the efficacy of estrus synchronization protocols i.e., Ovsynch and cosynch in kundhi buffaloheifers with reference to occurrence of estrus and conception rate. Thirty buffalo heifers were selected randomly at different farms of tando jam, Distt: Hyderabad. All the experimental heiferswere divided into two groups. Animals in Ovsynch group (n=15) received 02 ml Gonadotropin releasing hormone (GnRH) on day 0 and day 9. On day 7, 05ml Prostaglandin (PGF2α) was administered and fixed timed artificial insemination (FTA) was performed at 12 hours after last injection of (GnRH). In Cosynch group animals (n=15) received same treatment but artificial insemination was performed at a time when last injection of (GnRH) was administered. Estrus response were showed significant difference (P<0.05) among the treatment groups. Ovsynch group animals showed higher estrus response (11/15, 73%) as compare to Cosynch group (08/15, 53%).Conception rate were showed significant (P<0.05) difference among the treatment groups. Ovsynch group animals showed significantly higher (07/15, 47%) conception rate as compare toCosynch group (05/15, 33%). It was concluded that Ovsynch estrus synchronization protocol gave better results in terms of induction of estrus and conception rate as compare to Cosynch estrus synchronization protocol in buffalo heifers.*

Keywords:*Estrus synchronization, Estrus, Conception rate, buffalo heifers*

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I. Introduction

Pakistan is the home of best dairy buffalo breeds. Nili Ravi buffalo is founds in Punjab province while Kundhi in Sindh province. The name Kundhi is given to these animals due to the shape of their horns which are broad at the base and taper upward and inward giving them a fishhook shape. Buffaloes of this breed are massive with broad forehead and short neck. Color of the Kundhi buffaloes is jet-black. They possess medium size ears, with large strong udder. The milk yield of this breed is 1700-2200 liters per lactation with over 6 percent butter fat[1]

Artificial insemination (AI) is one of the major reproductive technology of the 20th century. This technology has not gained popularity in Pakistan and is being applied in only 10% of the total cows and buffaloes. Scattered population and small scale farms, are the most important obstacles in large scale use of this technology in the country. Estrus synchronization has been developed as an important tool to induce estrus and for increasing the rate of implementation of AI[2]. Several methods of estrus synchronization have been developed in bovine[3, 4]. Most commonly used estrus/ovulation synchronization protocols include Ovsynch, Cosynch and Ovsynch plus CIDR.

Ovsynch This protocol uses GnRH and prostaglandins in order to stimulate and induce ovulation. At day 0, a GnRH injection is administrated to stimulate endogenous luteinizing hormone (LH). The LH release causes ovulation of a follicle and thus the formation of a corpus luteum on the ovary. After ovulation of a follicle, the ovary begins to mature another dominant follicle. At day 7, a prostaglandin injection is administrated to lyse or to kill the corpus luteum. In about 48 hours, the dominant follicle will reach maturity, so another GnRH injection is administrated to cause ovulation[5].

Cosynch: This is another estrus synchronization protocol which follows the same protocol as Ovsynch, with one exception, namely that timed AI was done at the time the final GnRH injection is administrated[6.]

Very little information exists regarding the effectiveness of different estrus synchronization protocols with Kundhi buffalo heifers. Therefore, this study was designed to investigate the estrus response and conception rate in Kundhi buffaloes heifers using different estrus synchronization protocols.

II. Materials and methods

Animals and management: A total of 30 Kundhi buffalo heifers were randomly selected at different dairy farms of tando jam distt:Hyderabad for this study. The buffalo heifers were managed on semi-intensive management conditions. All the animals were confirmed as non-pregnant by rectal palpation before starting the experiment. The routine feeding and drinking practices of the farms were observed during this study.

Experimental design: The animals were distributed into two groups i.e., Ovsynch (n=15) and Cosynch (n=15). On day 0, the heifers of Ovsynch group received i/m inj. of 2 mL GnRH analogue (25 µg lecirelin acetate; Delmarelin®, FATRO Italy). On day 7, 5 mL PGF2α analogue (5 mg/mL dinoprosttromethamine; Lutalyse™, Pfizer, Belgium) were given, and a second dose of 2 mL GnRH were given on day 9. The heifers of Cosynch group received the same treatment as Ovsynch group.

Heat detection and artificial insemination: The heifers of both groups were observed closely from the day of treatment for behavioral changes to confirm the heat. Behavioral signs of heat (e.g., mounting, bellowing, vulvar swelling, tail raisingand micturition) were recorded. The heifers of Ovsynch group were artificially inseminated (12 h after the second GnRH inj.) and heifers of Cosynch group were inseminated at a time when last inj: of GnRH were administered. Using frozen-thawed semen obtained from Directorate of Animal Breeding, Government of Sindh.

Fertility rate: The pregnancy was confirmed per rectum after 60 days of AI.

Statistical Analysis: The data were analyzed by Anova and Chi-square tests using software Graph pad instate 3.05 versions of statistical package. Difference was considered as significant at $P<0.05$.

III. Results and Discussion

The present study was undertaken to compare the effect of two different hormonal treatments Ovsynch and Covsynch in Kundhi buffalo heifers. The results are presented in Table 1. The heifers of ovsynch group showed higher estrus response (73%) as compared to Cosynch group (53%). In the present study, significantly higher result was found in Ovsynch group, which was in support of[7, 8]. However, a much higher estrus response was reported by[9, 10] 80.0%. In contrast, [11]reported a lower estrus response with Ovsynch treated buffalo's heifers. The differences among the above findings might be due to differences in climatic conditions and breed of the animal.

Table 1. Effect of hormonal treatments on occurrence of estrus and conception rate in different groups of Kundhi buffalo heifers.

Treatment	Total animals	Estrus (%)	Conceived (%)
Ovsynch	15	11 (73%)	07 (47%)
Cosynch	15	08 (53%)	05 (33%)

In present study the conception rate was observed significantly higher in Ovsynch group (47%) than Cosynch group (33%) (Table 1). Similar findings were reported by[12, 5] 43.7% conception rate in Ovsynch group treated animals. In contrast, [13, 14]reported 56.5% and 60% conception rate with Ovsynchprotocol of estrus synchronization in buffaloes respectively. A number of factors such as nutritional status of animals, breed, etc., could play a major role in the observed variations.

IV. Conclusion

The findings of this study indicate that Ovsynchprotocol of estrus synchronization produces better results, and improves the conception rate in Kundhi buffalo's heifers in comparison with Cosynch.

References

[1]. Bilal MQ, Suleman M &Raziq A. 2006. Buffalo: Black gold of Pakistan Livestock research for rural development. 18(19).
[2]. Lamb GC, Dahlen CR, Larson JE, Maquezini G & Stevenson JS. 2010. Control of the estrous cycle to improve fertility for fixed-timed artificial insemination in beef cattle: A review. Journal Animal Sciences, 88:181–192.
[3]. Yusuf M, NakaoT,Yoshida C, Long ST, Fujita S, Inayoshi Y &Furuya Y (2010). Comparison in effect of Heatsynch with heat detection aids and CIDR- Heat synch in dairy heifers. Reproduction in Domestic Animals, 45: 500-504.
[4]. Ahmad S, Kumar H, Singh G &Patra MK (2011). The administration of GnRH plus PGF2 alpha synchronizes the estrus in anestrus crossbred cows exposed to bull urine. Indian Journal of Veterinary Research, 20: 42-45.
[5]. Caraba1 I &Velicevici S. 2013. Using Ovsynch Protocol versus Cosynch Protocol in Dairy Cows.Scientific Papers: Animal Science and Biotechnologies.46:2.
[6]. Stevenson JS, PursleyJR, GerverickHA, FrickePM, KeslirDJ, OttobreJS &WiltbankMC 2006. Treatment of Cycling and Noncycling Lactating Dairy Cows with CIDR Progesterone during Ovsynch protocol. Journal of Dairy Sciences. 89:2567–2578.

[7]. Rensis DF, Ronci G, Guarneri P, Nguyen BX, Presicce GA, Huszenicza G &Scaramuzzi RJ 2005. Conception rate after fixed time insemination following ovsynch protocol with and without progesterone supplementation in cyclic and non-cyclic Mediterranean Italian buffaloes (Bubalusbubalis). Theriogenology, 63: 1824-1831.
[8]. Warriach HM &Ahmad N 2007. Follicular waves during the oestrous cycle in Nili-Ravi buffaloes undergoing spontaneous and PGF2α- induced luteolysis. AnimReprodSci, 101: 332-337.
[9]. Hoque MN, Talukder AK, Kamal MM, Jha AK, Bari FY &Shamsuddin M. Ovulation synchronization in water buffaloes guided by milk progesterone assay. J Embry Trans 2011; 26: 105–109.
[10]. Carvalho NAT, Soares JG &Baruselli PS2017 evolution and perspectives of timed artificial insemination (tai) programs in brazil - a review. *unidade de pesquisa e desenvolvimento de registro/polo regional do d.s.a. do vale do ribeira/apta,registro - sp, 11900-000, brazil*
[11]. Barkawi HM,Farghaly HM & El –Borady AM 1995. Effect of treatment with GnRH analogue on postpartum reproductive performance of Egyptian buffalo cows, Buffalo J 11117-23.
[12]. Berber RCA, Madureira EH &Baruselli PS 2002. Comparison of two Ovsynch protocols (GnRH versus LH) for fixed timed insemination in buffalo (Bubalusbubalis). Theriogenology, 57: 1421- 1430.
[13]. Baruselli PS, Madureira EH, Banarbe VH, Barnarbe RC &Cassimiro R 2003. Evaluation of synchronization of ovulation for fixed time insemination in buffaloes (Bubalusbubalis). Braz J Vet Res AnimSci, 40: 431-442.
[14]. Ali A &Fahmy S 2007. Ovarian dynamics and milk progesterone concentrations in cycling and non-cycling buffalo-cows (Bubalusbubalis) during Ovsynch program. Theriogenology, 68: 23-28.

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