PHYSICO-MORPHOLOGICAL CHARACTERS OF SEMEN OF MURRAH BUFFALO BULL

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ABSTRACT

The physic-morphological characters of neat semen collected using artificial vagina from sexually mature Murrah buffalo bull (n=6, age 4-6 year) was recorded. The average semen volume was 3.67±0.21 ml, milky white in colour, medium to thick consistency, pH was 6.45±0.06, average sperm concentration was 1164.17±51 million/ml, average initial motility was good (90%), average live sperm count was 83.00±2.35%, abnormal sperm count was 10.67±0.61%, 4.37±0.18 minute for methylene blue reduction test and 89.17±1.87% sperm membrane integrity. In brief, the recorded data can be useful during breeding soundness evaluation of Murrah buffalo bull.

Keywords: Bull, Murrah buffalo, Physico-morphology, Semen

Presently, Murrah buffalo represent the best buffalo breed in dairy breeds for milk production. In India, the home tract of Murrah breed stretches around the southern parts of Haryana comprising the districts of Rohtak, Jind, Hisar, Jhajhar, Fatehabad, Gurgaon and the Union Territory of Delhi in India. Since individual bull serves many females, poor quality semen may affect herd fertility and productivity of the farm by lengthening calving intervals. An accurate evaluation of freshly drawn semen of Murrah buffalo bull is important for the success of artificial insemination procedures (Dhurvey *et al.,* 2012). The present study was planned to evaluate various physic-morphological characteristics and fertilizing ability of semen of Murrah buffalo bull.

For seminal analysis, six Murrah buffalo bulls (age 4-6 year) reared under the identical feeding and managemental conditions during the entire duration of the study were selected. Semen was collected early morning using artificial vagina and was transported to laboratory within half an hour after collection. The volume of ejaculate was measured directly with the help of graduated vial, colour of semen was observed visually, hydrogen ion concentration (pH) of semen was determined by indicator paper strips, sperm concentration was determined by direct cell count, motility of semen was tested according to percent motility values, and abnormal sperm percentage as well as live and dead count was evaluated. Metabolic test viz. methylene blue reduction test was carried out. For sperm membrane integrity, hypo-osmotic swelling test was performed. The data related to phsico-morphology were statistically analyzed using analysis of equal variance.

Average neat semen volume of Murrah buffalo bull was 3.67±0.21 ml, and the color was milky white (Table 1), as recorded earlier (Kumar and Krupakaran, 2014). In fact, the volume of an ejaculate is a good indicator of fertility (Laing *et al.,* 1988). The semen consistency and pH was medium to thick and 6.46±0.32, respectively (Table 1), and corroborated with earlier findings in Murrah buffalo bull (Baviskar, 2003). Sperm concentration is an important criterion of semen characteristics to qualify the bull as a fertile male for breeding purposes (Graffer *et al.,* 1988). In fact, the average sperm concentration recorded in Murrah buffalo bull of present study was 1164±51.17 million/ml (Table 1). The results are similar to the findings made in Murrah buffalo bulls (Baviskar,

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Table 1: Physico-morphological attributes of neat semen of Murrah buffalo bull

Parameters (Units)	Mean±SE
Volume (ml)	3.67±0.21
Colour	Milky white
Consistency	Medium - Thick
pH	6.45±0.06
Sperm concentration (million/ml)	1164±51.17
Initial motility %	90 (Good)
Abnormal sperm %	10.67 ± 0.61
Live sperm %	83.00±2.35
Time required for MBRT (min)	4.38±0.20
Hypo-osmotic swelling test, %)	87.67±2.08

2003). In the present study, the initial motility of fresh semen of Murrah buffalo bull was 90% (Table 1), as reported in Murrah buffalo bull (Saxena and Tripathi, 1983). The average abnormal sperm percentage and mean live percentage of Murrah buffalo bull was 10.67±0.61% and 85.00±0.83%, respectively (Table 1). Sperm defects involving tail and head are mostly filtered out in the female reproductive tract before they reach the oviduct, reducing competition with normal cells for fertilization (Jelinski *et al.,* 2002). The average methylene blue reduction time (MBRT) of semen of Murrah buffalo bull was 4.37±0.18 min, and the mean value for hypo-osmotic swelling test of semen was 89.17±1.87% (Table 1), as reported earlier (Baviskar, 2003 and Pawar, 2008). In brief, on the basis of present observations on physico-morphological characters, it can be concluded that semen quality may be used for the evaluation of Murrah buffalo bull in breeding programme.

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