



RESEARCH
ARTICLE

Influence of sodium nitroprusside on sperm motility, viability and morphology of frozen thawed buffalo semen

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Abstract : The present investigation has been undertaken to study the effects of exogenous supplementation of sodium nitroprusside (SNP), a nitric oxide (NO) donor on *in vitro* sperm characteristics of buffalo semen. Buffalo straws from 6 bulls were procured from Central Frozen Semen Production and Training Institute, Hesseraghatta, Bangalore-51. The frozen straws were thawed at 37°C for 30 seconds and emptied into 15 ml sterile plastic centrifuge tube containing 1 ml of capacitation medium (control), addition of 100 µM/ml of SNP (SNP treatment I) and 100 nM/ml of SNP (SNP treatment II) and were incubated at 37°C for 1 hour. After 1 hour incubation, the progressive motility was studied under bright field microscopy. Sperm motility was significantly (P<0.01) lowered in SNP treatment I (11.67% ± 1.67) and II (23.33% ± 2.11) as compared to control (43.33% ± 2.11). Between treatments, sperm motility was significantly (P<0.01) high in SNP treatment II than SNP treatment I. The sperm viability was assessed by the supravital Eosin and Nigrosin stain method. Significantly (P<0.01) higher percentage of spermatozoa were alive in control (56.67% ± 0.88) in comparison with SNP treatment I (25.08% ± 1.19) and II (37.83% ± 1.27). But, more spermatozoa were significantly (P<0.01) alive in SNP treatment II than SNP treatment I. The sperm morphology was determined by Rose Bengal stain technique. Morphologically normal spermatozoa were significantly (P<0.01) more in control (83.00% ± 0.62) when compared to SNP treatment I (53.00% ± 0.59) and II (68.42% ± 0.87). In similar way, significantly (P<0.01) higher proportions of spermatozoa were morphologically normal in SNP treatment II than SNP treatment I. From this study, it is concluded that addition of SNP, a NO donor has detrimental effects on the sperm motility, viability and morphology of frozen thawed buffalo semen on concentration dependant manner.

Key words : Sperm motility, viability, Morphology, Sodium nitroprusside, Buffalo semen

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