CRYOSURVIVAL OF RAM SPERMATOZOA AFTER SUPPLEMENTING THE DILUENT WITH L-ASCORBIC ACID OR A-TOCOPHEROL

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In the current investigation, 2 experiments were conducted to evaluate cryosurvival of ram spermatozoa after supplementing the diluent either with (i) vitamin C or (ii) vitamin E. Ejaculates (*n*= 15) were collected from 5 adult Barki rams, 3 ejaculates each, by an artificial vagina during January, 2017. After evaluation, ejaculates of each collection session were pooled, diluted (1:10) with glycerolized Tris-citric acid egg yolk and were further split into 7 aliquots corresponding to the following groups: control (untreated), vitamin C (0.1, 0.2 or 0.3 mM) and vitamin E (0.1, 0.2 or 0.3 mM) (T_0). Thereafter, all specimens were equilibrated for 5 hr at 4 ^{o}C before being processed for cryopreservation. Post-thaw physical and morphological sperm properties were determined by CASA. The results showed that both low vitamin C (Vit-C $_{LD}$) and high vitamin E (Vit-E $_{HD}$) levels in preservation medium markedly ($P<0.05$) improved post-thaw physical and morphological properties of spermatozoa, thus, they were considered the optimum levels of each individual supplement. Furthermore, specimens supplemented with Vit-E $_{HD}$ recorded the highest ($P<0.05$) values of post-thaw motility, viability, normal spermatozoa and sperm functional integrity compared to both control and Vit-C $_{LD}$ supplemented groups. Contrariwise, the later groups recorded the highest ($P<0.05$) percent of secondary sperm abnormalities compared to that ofVit-E $_{HD}$ group. These results elucidate that supplementing the diluent with 0.3 mM α-Tocopherol is most appropriate to increase ram sperm cryosurvival *in vitro*, which would be beneficial for maximizing utilization of cryopreserved semen in AI and IVF schemes.

Keywords: L-Ascorbic acid, α-Tocopherol, oxidative stress, Cryopreservation, ram semen