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Effects of thymoquinone supplementation on cyclophosphamide toxicity of mouse embryo in vitro (Article)

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Abstract

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Thymoquinone is the major active component derived from the traditional medicinal plant *Nigella sativa*, which has been shown to exhibit antioxidant property through different mechanisms in animal models. This study evaluates the prophylactic effect of thymoquinone supplementation on culture medium to ameliorate cyclophosphamide-induced alterations in cellular differentiation and proliferation during embryo development in vitro. Male and female mice were exposed to cyclophosphamide via a single intraperitoneal (i.p.) injection at 200 mg/kg. Sperms and oocytes were collected at day 33 and day 10 respectively, for insemination and fertilization in medium supplemented with thymoquinone (1µM, 10µM and 100µM). The stages of fertilization, embryo division, morphological effects and fragmentation were examined and compared between groups, 24 hours post-fertilization. Thymoquinone supplementation improved fertilization rates, significantly reduced the percentage of defects blastomeres of Type C ($p < 0.001$) and significantly decreased the percentage of embryo fragmentation Grade IV ($> 50\%$, $p < 0.05$) following paternal and maternal exposure to cyclophosphamide. The good quality embryos of Type A and Grade I fragmentation were not observed in the group without thymoquinone supplementation. The findings of this study showed that thymoquinone is a suitable exogenous antioxidant for preserving fair-quality embryos which can result into full term pregnancy. © IDOSI Publications, 2014.

Author keywords

Blastomeres Cyclophosphamide Embryo Fertilization Fragmentation In-vitro Thymoquinone

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Investigating the potential of *Nigella sativa* and thymoquinone in salvaging the embryo from effects of toxic paternal exposure to cyclophosphamideRahman, S.A. , Samat, N.H.A. , Ahmad, N.A.
(2017) *International Medical Journal Malaysia*Black seed (*Nigella sativa*) and its constituent thymoquinone as an antidote or a protective agent against natural or chemical toxicitiesTavakkoli, A. , Ahmadi, A. , Razavi, B.M.
(2017) *Iranian Journal of Pharmaceutical Research*

Effects of low doses of exogenous thymoquinone on sperm motility and viability of normozoospermic men

Fazelian, K. , Dashti, G. , Golshan-Iranpour, F.
(2014) *Journal of Isfahan Medical School*[View all 3 citing documents](#)

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