

## In vitro Effects of Amygdalin on the Functional Competence of Rabbit Spermatozoa

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**Abstract :** The present *in vitro* study was designed to reveal whether amygdalin (AMG) is able to cause changes to the motility, viability and mitochondrial activity of rabbit spermatozoa. New Zealand White rabbits (n = 10) aged four months were used in the study. Semen samples were collected from each animal and used for the *in vitro* incubation. The samples were divided into five equal parts and diluted with saline supplemented with 0, 0.5, 1, 2.5 and 5 mg/mL AMG. At times 0h, 3h and 5h spermatozoa motion parameters were assessed using the SpermVision<sup>®</sup> computer-aided sperm analysis (CASA) system, cell viability was examined with the metabolic activity (MTT) assay, and the eosin-nigrosin staining technique was used to evaluate the viability of rabbit spermatozoa. All AMG concentrations exhibited stimulating effects on the spermatozoa activity, as shown by a significant preservation of the motility (P<0.05 with respect to 0.5 mg/mL and 1 mg/mL AMG; Time 5 h) and mitochondrial activity (P<0.05 in case of 0.5 mg/mL AMG; P<0.01 in case of 1 mg/mL AMG; P<0.001 with respect to 2.5 mg/mL and 5 mg/mL AMG; Time 5 h). None of the AMG doses supplemented had any significant impact of the spermatozoa viability. In conclusion, the data revealed that short-term co-incubation of spermatozoa with AMG may result in a higher preservation of the sperm structural integrity and functional activity.

**Keywords :** amygdalin, CASA, mitochondrial activity, motility, rabbits, spermatozoa, viability

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