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## Study effects of ivermectin and interaction with supplements vitamin A and vitamin C on oxidative stress system in male wistar rat

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For an *in vivo* investigation a total of 25 male wistar rats of 6-8 weeks old and 150-200g, were equally divided into five experimental groups; control group; oral solution of ivermectin; mixture of ivermectin and vitamin A; mixture of ivermectin and vitamin C; mixture of ivermectin, vitamin A and vitamin C; weekly for three weeks. At the end of the experimentation, the rats were sacrificed and measurements of the oxidative stress factors were done. The results of the study showed that the administration of free ivermectin orally led to serum oxidative stress. However, the use of vitamin A and vitamin C might have a promising effect against stress oxidative duo to usage of the drug. The administration of free ivermectin has side effects on mammals, while use of the drug supplemented with antioxidants like vitamin A and vitamin C moderates its toxic effects.

Table 1: Effect of treatment with Ivermectin, Vitamin A and vitamin C on serum oxidant and antioxidant parameters of adult male Wistar rats.

Group	MDA	TAC	TAC/MDA	TAC/MDA	P
Control	0.18±0.02	0.18±0.02	1.00	1.00	0.01
Ivermectin	0.28±0.03	0.12±0.01	0.43	0.43	0.00
Ivermectin+Vitamin A	0.19±0.02	0.17±0.02	0.89	0.89	0.01
Ivermectin+Vitamin C	0.18±0.02	0.18±0.02	1.00	1.00	0.01

All values are expressed as mean±standard deviation.  
The different superscripts are significantly different.  
MDA=Malondialdehyde, TAC=Total antioxidant capacity, TAC/MDA=Total oxidant status  
\*Comparing with Control & Comparing with Ivermectin  
\*Comparing with Ivermectin & Comparing with Ivermectin+Vitamin A

### Recent Publications

1. Benzie I F and Strain J J (1999) The Ferric reducing/ antioxidant power assay: direct measure of total antioxidant activity of biological fluids and modified version for simultaneous measurement of total antioxidant power and ascorbic acid concentration. *Methods Enzymology* 299:15-27.
2. Botsoglou N A, Fletouris D J, Papageorgiou G E, Vassilopoulos V N, Mantis A J and Trakateliis A G (1994) Rapid, sensitive, and specific thiobarbituric acid method for measuring lipid peroxidation in animal tissue, food, and feed stuff samples. *Journal of Agricultural and Food Chemistry* 42:1931-1937.
3. Cha J H, Yu Q M and Seo J S (2016) Vitamin A supplementation modifies the antioxidant system in rats. *Nutrition Research and Practice* 10(1):26-32.
4. Erel O (2005) A new automated colorimetric method for measuring total oxidant status. *Clinical Biochemistry* 38(12):1103-1111.
5. Zuhair Z and Alamri H (2011) The role of vitamin C in alteration of enzymes responsible of energy metabolism induced by administration of tamoxifen to mouse. *Advances in Biological Chemistry* 1(2):15-23.

### Biography

Alireza Bashiri was born in Mashhad, 1988. He got diploma in 2006 from a grammar high school in Sirjan and has studied veterinary medicine (DVM) in Shahid Bahonar University of Kerman. Thereafter he was accepted for the residency course (DVSc) at the University of Tehran which holds the top rank in Iran. At the moment, he is a chief resident of veterinary surgery at the University of Tehran studying in the eighth semester and as a resident have finished all courses and successfully passed the board exam in the third year. He has published several articles for my academic achievement and spent an equine surgery traineeship in Italy as a valuable practical experience during my undergraduate. Although he does research in Veterinary Surgery and Anesthesiology, Equine Surgery and Orthopedics, currently in most recent publication collaborate with Department of Basic Science.

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