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**Resveratrol and Its effects on the oxidative stress: experimental study in envenomated model**

**Daachi Fares**, Adi-Bessalem Sonia, Megdad-Lamraoui Amal, Laraba-Djebari Fatima

*USTHB, Faculty of Biological Sciences; Laboratory of Cellular and Molecular Biology, BP 32 El-Alia, Bab*

*Ezzouar, Algiers, Algeria,*

[faresdaachi@outlook.fr](mailto:faresdaachi@outlook.fr)

**Abstract**

**Introduction:** Resveratrol, the bio-polyphenolic stilbenoid substance isolated initially from *Veratrum grandiflorum* and richly present in grapes, wine, peanuts, soy, and in several other plants. Its compound has many properties, including activity against glycation, oxidative stress, inflammation, neurodegeneration and cancer. Scorpion envenomation by *Androctonus australis* hector venom is known to cause the liberation of neurotransmitters and the release of inflammatory mediators (cytokines, eicosanoids, reactive oxygen species, and nitric oxide) which may play an important role in the pathophysiological disturbances and the installation of oxidative stress.

**Aim of Study:** The aim of this study is to investigate the antioxidant effects of Resveratrol on the oxidative stress induced by scorpion venom in an experimental model.

**Materials and Methods:** NMRI mice were pre-treated with Resveratrol (20 mg/kg, i.p.) 30 minutes before envenoming with a sublethal dose of *A. australis* hector venom (Aah) (0.75 mg/kg, s.c). After envenomation, various pro and anti-antioxidant parameters (Hydrogen peroxide, Malondialdehyde, Myeloperoxidase activity, nitrite, catalase activity and Glutathione) were evaluated.

**Results:** Administration of Resveratrol seems to inhibit the overproduction of pro-oxidant parameters in the serum samples. There were significant lower levels of H<sub>2</sub>O<sub>2</sub> (p<0.05), MDA (p<0.01), MPO (p<0.01) and NO (p<0.05), Furthermore, Resveratrol also induce à Significant increased of the antioxidant defences levels (catalase activity: p<0.05) and (GSH: p<0.05) when compared with envenomed serum samples.

**Conclusion:** Resveratrol seems to be able to inhibit the release of free radicals after scorpion envenomation. The Potential antioxydant mechanisms implicated by Resveratrol include the following: Scavenging free radicals, Competition with coenzyme Q, which leads to decrease the oxidative chain complex (the site of ROS generation), inhibition of lipid peroxidation induced by Fenton reaction products, inhibition of inflammatory enzymes such as iNOS and COX-2 (cyclo-oxygenase-2) through its inhibitory effects on NF-κB (nuclear factor κB) or the AP-1 (activator protein-1) signalling pathways.

**Keywords:** Reactive oxygen species, Resveratrol, Antioxidant status, Scorpion venom.