

RESEARCH ARTICLE

Effect of red grape extract on nicotine induced oxidative stress in the skeletal muscle fibres of male albino rat

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ABSTRACT..... Pathogen free, wistar strain male albino rats were used in the present study. Age matched rats were divided into 4 groups of six in each group and treated as Normal control (NC) (Control rats received 0.9% saline), Nicotine treated (Nt) (at a dose of 0.6 mg/ kg body weight by subcutaneous injection for a period of 2 months), Nicotine treated + Red Grape extract treated (Nt+RGEt) (Nicotine at a dose of 0.6 mg/ kg body weight by subcutaneous injection and red grape extract 25 mg/kg body weight via orogastric tube for a period of 2 months), Nicotine treated + Red grape extract treated (Nicotine at a dose of 0.6 mg/ kg body weight by subcutaneous injection for a period of 2 months, red grape extract at a doses of 50 mg/ kg body weight via orogastric tube for a period of 2 months). The animals were sacrificed after 24 hrs after the last treatment by cervical dislocation and isolated the skeletal muscle fibres such as gastronemius (GN) and soleus (SOL), measured the activities of alkaline phosphatase (ALP), aspartate transaminase (AST), alanine transaminase (ALT) and lactate dehydrogenase (LDH). In nicotine treated rats, the activities of ALP, AST, ALT and LDH were significantly increased in the both muscle fibers when compared to control rats. In the combination treatment (Nicotine + Red grape extract), the upregulation was observed, red grape extract at a dose of 50 mg/kg body weight found to be more effective. The levels of glutathione (GSH), glutathione peroxidase (GPx), superoxide dismutase (SOD) and catalase (CAT) decreased in nicotine treated rats in both muscle fibres and increase was observed in the combination (Nt+RGEt), but at 50 mg/kg body weight found to be more effective. This results stating that red grape extract are beneficial, especially for the nicotine subjects to improve the metabolic efficiency and thereby to improve the health status and life span.

KEY WORDS..... Nicotine, Red grape extract, Antioxidants, Skeletal muscle fibres

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