

RESEARCH ARTICLE

## Interaction of alcohol and nicotine on antioxidant enzymes in the skeletal muscle fibres of male albino rat

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**ABSTRACT.....** Alcoholic beverages are fermented from the sugars in fruits, berries, grains, and such other ingredients as plant saps, tubers, honey and milk and may be distilled to reduce the original watery liquid to a liquid of much greater alcoholic strength. Nicotine is a naturally occurring alkaloid found in many plants. The principal sources of nicotine exposure are through the use of tobacco, nicotine containing gum and nicotine replacement therapies. Nicotine is most biologically active chemical in tobacco smoke. Nicotine has been reported to induce changes both *in vivo* and *in vitro*. Wistar strain male albino rats were used in the present study. Rats were divided into 4 groups of six in each group and treated as: (i) Normal control, (ii) Nicotine treated (Nt), (iii) Alcohol, (iv) Nicotine +Alcohol (Nt+Alcohol). Control rats received 0.9 per cent saline. The second group of rats received the nicotine at a dose of 0.6 mg/kg body weight by subcutaneous injection for a period of 2 months. The third group of rats received the Alcohol at a dose of 2.0 g/kg body weight via orogastric tube for a period of 2 months. The fourth group of rats received the nicotine + Alcohol as followed by the second and third group. The animals were sacrificed after 24 hrs after the last treatment by cervical dislocation and isolated the skeletal muscle fibres from the hind limbs such as, Soleus (SOL), Red vastus (RV) and White vastus (WV), washed with ice-cold saline, immediately immersed in liquid nitrogen and stored at -80<sup>o</sup> Enzymatic assays. Assayed the selected parameters such as Glutathione (GSH) Superoxidedismutase (SOD), Catalase (CAT) and Glutathioneperoxidase (GPx). Hence the present study was carried out to evaluate the interaction of alcohol and nicotine on antioxidant enzymes in the skeletal muscle fibres of male albino rat.

**KEY WORDS.....** Alcohol, Nicotine, GSH, SOD, CAT, GPx, Skeletal muscle fibres, Male albino rat

**HOW TO CITE THIS ARTICLE** - Chennaiah, K., Basha, K. Khalindar, Subahan, M., Sivasankar, R., Murthy, N. Lakshmi Narasimha (2012). Interaction of alcohol and nicotine on antioxidant enzymes in the skeletal muscle fibres of male albino rat. *Asian J. Animal Sci.*, 7(2) : 72-77.

**ARTICLE CHRONICLE** - Received : 22.05.2012; Revised : 20.06.2012; Accepted : 07.09.2012

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### INTRODUCTION.....

Alcoholic beverages are included in the social acceptable drugs which are used to help people, endure each other, to relax, to enjoy, to stimulate or to satisfy a need for oral manual activity (Feldman *et al.*, 1997). As a large majority of humans enjoy the consumption of alcoholic beverages which has become a curse of modern civilization. In the highly developed countries, two thirds of all adults use alcohol occasionally

and at least 12 per cent of the users can be considered as heavy drinkers. At small doses alcohol rapidly bestows upon consumer a warm relaxed feeling of tranquility that contributes to conveniently in social situations. However, consumption of larger amounts leads to disinhibition by social constraints, so that disobligingly turn to biosterousness and irresponsibility (Feldman *et al.*, 1997).

Alcohol abuse is associated with severe damage of