

EFFECT OF ALLIUM NEAPOLITANUM ON LIVER INJURY INDUCED BY ETHANOL IN RATS

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Allium sativum L., garlic, has had an important dietary and medicinal role since centuries. The suggested pharmacological effects of garlic are numerous: hypolipidemic, anticoagulant, antihypertensive, antimicrobial, anticancer, as antidote for heavy metal poisoning, hepatoprotective (1). This study investigates the hepatoprotective activity of *Allium neapolitanum* Cyr., (leaves and bulbs), a spontaneous species of endemic Italian flora, compared with the activity of the greatly studied garlic. The hepatoprotective effects of both *Allium* species were evaluated *in vivo* using acute ethanol-intoxicated rats as an experimental model and measuring antioxidant defense system in liver tissue.

Male albino wistar rats (110-170g) were used, animals were orally treated with fresh *Allium* species homogenates (leaves and bulbs 250mg/kg b.w.) daily for 5 days whereas controls received vehicle only. At the end of the experimental 5-days period, the animals were treated with an acute ethanol dose of 6ml/kg b.w i.p. 2 hours before the last *Allium* administration and sacrificed 6 hours after ethanol administration. Liver tissue was removed to study the activities of catalase (CAT), superoxide dismutase (SOD), and the levels of malondialdehyde (MDA), ascorbic acid (AA) and reduced and oxidized glutathione (GSH and GSSH).

Ethanol treatment resulted in the hepatic accumulation of MDA (+20%) and an increase of GSSG (+ 45%) significantly higher than the control group ($P<0.05$ and $P<0.001$ respectively). The contents of GSH (-43%), and AA (-25%) in liver tissues were significantly reduced if compared to control animals ($P<0.05$). The levels of GSSG, AA, MDA and the activity of SOD and CAT in liver were not different between the *Allium*-fed and control animals. However the *Allium* species administration for 5 days (leaves and bulbs) following by acute ethanol treatment re-established the observed parameters similar to control values. The results suggest that fresh *Allium* species homogenates possess antioxidant properties and provide protection against ethanol induced liver injury. In conclusion, the present study reveals that both *Allium* species may have a bioprotective effect on liver ethanol-induced oxidative stress and also *Allium neapolitanum*, the spontaneous species, could be a promising candidate herb for the development of a phytomedicine.

References

1) Lawson LD (1994). Human medicinal agents from plants. In: Bioactive Organosulfur Compounds of Garlic and Garlic Products. American Chemical Society, Washington, DC, pp. 306–330.