

## EFFECT OF PLANTS' EXTRACTS ON RAT LIVER AGAINST CCl<sub>4</sub> INTOXICATION.

H.R. Vardapetyan\*, Sh.A. Kazaryan , G.G. Gasparyan

*Russian-Armenian University, Yerevan, Armenia*

\*E-mail: [hvardapetyan@mail.ru](mailto:hvardapetyan@mail.ru)

Flavonoids are plant secondary compounds that represent a low molecular polyphenols. They have broad spectrum of biological activity, demonstrating immune modulating, anti-inflammatory, anti-asthma, -cancer and other activities. The impact of phenolic compounds is based on their antioxidant features. The aim of the thesis was to evaluate the antioxidative and hepatoprotective effects of ethanolic extracts of *P. major*, *L. nobilis*, *O. basilicum* in terms of the cytotoxic effects of CCl<sub>4</sub> with the simultaneous study of histomorphology and key biochemical indicators of hepatocytes toxic damage. The mechanisms of their effects are monitored, as well as examine the possibility of their use in the treatment of hepatitis of various etiologies.

The highest amount of flavonoids has been found in *O. basilicum* (27.2 µg/ml), the lowest in *P. major's* (10.9 µg/ml) extract, despite among the studied extracts the highest antiradical activity has *L.nobilis*, the lowest *O. basilicum*. According to the results all three extracts contain quercetin and morin. It should be noted that the amount of quercetin and morin in extracts are correlated with antiradical and antibacterial activity, respectively.

Results of in vivo experiments have shown that when *L.nobilis*, *O. basilicum*, *P. major* extracts administered simultaneously with CCl<sub>4</sub> the increase in life duration of experimental rats as compared to control at 480, 96 and 48 hours, respectively. It was showed that in case of abdominal CCl<sub>4</sub> injection of the rats in blood plasma the increase of biochemical key indicators of hepatocyte and kidney damage, such as aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase and γ-glyutamyltransferase amount was observed. At simultaneous injection of *L.nobilis* extract and CCl<sub>4</sub> in blood plasma AST, ALT, alkaline phosphatase, γ-glyutamyltransferase decrease in 21%, 30%, 68% and 35%, respectively, compared with animals injected only CCl<sub>4</sub>. The results show the *L.nobilis* extract hepatocyte and kidney cells protective activity. Rat liver functional condition has been evaluated by "dark" layers measuring on microphotos, as well as by De-Ritis ratio determination methods (serum ALT and AST activities relation) that also show *L.nobilis* extract hepatoprotective activity during CCl<sub>4</sub> intoxication.

The results show that in case of *L.nobilis* and CCl<sub>4</sub> injection, there is a decrease in hemorrhagic and hepatotoxic injury area in 47%. The results show, that *L.nobilis* extract has expressed antihemorrhagic and hepatoprotective activity, related to CCl<sub>4</sub> toxic effects.

[1] H. Vardapetyan, S.Tiratsuyan and A.Hovhannisyanyan, Journal of Experimental Biology and Agricultural Sciences, 2 (2014), 300-307.

[2] A. D. Agrawal, International Journal of Pharmaceutical Sciences and Nanotechnology, 4 (2011), 1395-1398.