ANTIOXIDANT PROPERTIES OF GRAPE POLYPHENOL CONCENTRATE FROM KAZAKHSTAN REGION

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Introduction. It is believed that the antioxidant effects are widespread among plant polyphenols. Antioxidant effect is associated with main biological activities of polyphenols.

Objective. To describe the antioxidant effect of grape polyphenol concentrate from Kazakhstan selection in vivo on models of pathologies with overproduction of free radicals.

Material and methods. The concentrate of polyphenols from Kazakhstan selection of grapes, standardized to total phenolic number, was obtained at the Institute of Food and Processing Industry of Kazakhstan. The content of 24 individual polyphenols was quantitatively determined by HPLC. The following pathology models were reproduced using Wistar rats: a model of toxic hepatitis caused by injection of CCI4, model of acute radiation sickness, models of doxorubicin induced cardiomyopathy and nephropathy, alloxan and streptozotocin induced models of diabetes, post-castration model of osteoporosis. The polyphenol concentrate was administered to rats orally in a dose of 10 mg / kg (volume 0.5 ml) for a week. All effects were compared to placebo.

Results. All reproduced disease models were characterized by high levels of D-ROMs test (concentration of reactive oxygen species in plasma) and a decline in the PAT-test (antioxidant capacity of blood plasma). Polyphenol concentrate effect on all disease models resulted in decreased serum level of D-ROMs test and increased the level of PAT-test. Moreover grape polyphenol concentrate showed antitoxic effect on CCI4 and doxorubicin poisoning, hypoglycemic effect in alloxan and streptozotocin induced diabetes, protective hematology effect during radiation sickness.

Conclusion. The grape polyphenol concentrate from Kazakhstan selection has a strong antioxidant effect on various experimental models of pathologies related to the overproduction of reactive oxygen species.