BIOCHEMICAL INVESTIGATION OF PROTECTIVE ACTIVITY OF ASTAXANTHINE ON PREVENTING KIDNEY DAMAGE OCCURRED IN RATS ALUMINUM EXPOSURE

H. Turan Akkoyun
Siirt University Faculty of Veterinary
turanakkoyun@siirt.edu.tr

Aydın Şükrü Bengü
Bingöl University SHMYO
abengu@bingol.edu.tr

Mahire Bayramoğlu Akkoyun
Siirt University Faculty of Veterinary
mahireakkoyun@siirt.edu.tr

Halit Demir
Yuzuncu Yil University, Faculty of Science
halit demi@gmail.com

Tuğçe Atçalı
Bingöl University Faculty of Veterinary
tatcali@bingol.edu.tr

ABSTRACT:
In this study biochemical investigation of protective activity of astaxanthine on preventing kidney damage occurred in rats due to aluminum exposure was conducted. In our study 20 Wistar albino rats weighing 250-300 gr were divided into four equal groups as Control, Aluminum, Astaxanthine, and Aluminum+Astaxanthine. Rats in control group received i.p. isotonic saline, rats in Aluminum group received i.p. 20 mg/kg Al, rats in Astaxanthine group received i.g. 5 mg/kg AST, finally rats in Astaxanthine+aluminum group received i.p.20 mg/kg Al and i.g. 5 mg/kg AST. Study was conducted for 14 days. Tissue samples were obtained at 14th day and GSH, CAT, MDA analyses were performed. When results were evaluated statistically, an increase in kidney GSH levels in AST group compared to control group (p<0.01), similarly an increase in AST group compared to aluminum administered group were observed (p=0.001). A decrease in Al administered group compared to control group was observed (p>0.05). In addition, a decrease in Al+AST administered group compared to AST administered group was found (p=0.05). When kidney CAT levels were evaluated an increase in enzyme activity in AST administered group compared to Al administered group was seen, p<0.05. A decrease in enzyme activity in Al and Al+AST administered groups compared to control group was observed, whereas enzyme activity was increased in AST administered group. Finally, when kidney MDA levels were assessed an increase in AST group compared to control (p<0.05) and a decrease in Al+AST group compared to AST group (p<0.05) was determined.

Keywords: Aluminum, Kidney, Astaxanthine, Rat