

ABSTRACT

The objective of the present study was to evaluate the prophylactic effect of *Withania somnifera* (aqueous root extract) on experimentally infected by *Staphylococcus aureus* in Streptozotocin (STZ) induced diabetic rats. *W. somnifera* is an important Indian traditional medicinal plant used against pathogenic bacteria and also used as antidiabetic agent in ayurvedic formulation (Trasina). The most common cause of hospitalization for diabetic patients is infections. Diabetes can slow down body's ability to fight infection because of poor host defence mechanism and high blood glucose leads to high levels of sugar in the body tissues. When these happen, bacteria grow and infections can develop more quickly in people with diabetes. Meticillin-resistant *S. aureus* (MRSA) is a major pathogen in these infections. Aqueous root extract of *W. somnifera* 200 and 500 mg/kg/day was given orally for a period of 14 days to the STZ-induced diabetic rats and MRSA infected diabetic rats. Diabetic rats were infected by injecting 1 ml of MRSA/PBS suspension containing 10^7 c.f.u via i.p route. The influence of *W. somnifera* on blood glucose, Total cholesterol, HDL, VLDL, Triglycerides, Total protein, Total body weight, Malondialdehyde (MDA) in liver were determined in diabetic and MRSA-infected diabetic rats. Bacterial burden in the kidneys of MRSA infected diabetic rats was estimated only in the MRSA-infected diabetic rats. The results had showed significant reduction ($p < 0.05$) in the serum glucose level, serum protein, serum triglycerides, serum cholesterol and bacterial burden in the kidney. HDL-cholesterol, body weight was increased significantly ($p < 0.05$), so that the aqueous extract of *W. somnifera* root was found to be effective in 500 mg/kg dose against the STZ induced diabetes. This dose was also effectively reduced the MRSA in diabetic rats.

Keywords: diabetic, *Withania somnifera*, MRSA, infection, STZ.