Antioxidant capacity and anti-diabetic effect of *Boswellia serrata* aqueous extract in female diabetic rats and the possible histological changes in the liver and kidney.

F. Ahmadpour\(^1\), F. Namjoyan\(^2\), M. Azemi\(^1\), M. Khodayar\(^3\), A. Darvish Padok\(^1\), M. Panahi\(^4\)

\(^1\)Medicinal Plant Research Center, Pharmacognosy Department, School of Medicine, Ahvaz JundiShapur University of Medical Sciences, Ahvaz, Iran  
\(^2\)Marine Natural Pharmaceutical Products, Pharmacognosy Department, School of Medicine, Ahvaz JundiShapur University of Medical Sciences, Ahvaz, Iran  
\(^3\)Toxicology Research Center, Toxicology-pharmacology Department, School of Pharmacy, Ahvaz JundiShapur University of Medical Sciences, Ahvaz, Iran  
\(^4\)Anatomy Department, School of Medicine, Ahvaz JundiShapur University of Medical Sciences, Ahvaz, Iran

**Background and Aims:** The use of Boswellia has been documented as a wide variety of diseases, including diabetes mellitus and inflammatory diseases. This study was focused on the antioxidant effects of Boswellia aqueous extract impact on reproduction in female diabetic rats and the plant's effects on blood glucose and diabetes complications in the liver & kidney of female diabetic rats.

**Methods:** The antioxidant capacity of plant extract was evaluated using FRAP assay. The focus group was fertile female group so after mating condition vaginal plaque mentioned as a positive sign of pregnancy and treatment started with extract or vehicle from 1st to 7th day of gestation by gastric gavage. Diabetic and control rats were administered 200,400,600 mg/kg Boswellia extract. Blood glucose was measured during 17 days.

**Results:** Administration of Boswellia in diabetic rats significantly decreased the level of blood glucose and HbA1c after 17th days (p ≤ 0.01). In diabetic group that received no treatment fetus spontaneous abortion was 19.14%. The percentage of absorptions was significantly elevated in vehicle-treated diabetic rats, in comparison with vehicle treated healthy rats. In the diabetic group, separated necrosis of hepatocytes, anarchism of liver plates, and lymphocytic inflammation were improved. Diabetic complications were not seen and the severity of damage was reduced. These damage including: lymphocytic inflammation in the port areas, irregularities, apoptosis of liver cells, and dilatation of the sinusoid.

**Conclusions:** The results suggest that Boswellia extract has antidiabetic effects and could prevent complications of diabetes in the kidneys and liver.

**Keywords:** *Boswellia serrata*; Antidiabetic, Diabetes complication; Histopathology; Female rats