Objective: In this research, we evaluated the antihyperglycemic effect of leaves of *Fumaria parviflora* (*F. parviflora*) and implied mechanisms by using in vivo models of hyperglycemia.

Materials and Methods: Fifty male Wistar rats weighing 180-220 g were applied for the research. Soxhlet ethanolic extract of leaves of *F. parviflora* (*EFP*) was prepared. Alloxan-induced diabetic rats were orally remedied with the extract (50, 100 or 200 mg/kg/day), metformin (200 mg/kg/day) for two weeks. Another animal received only extract, alloxan (diabetic control) or vehicle (control).

Results: pretreatment effect of plant extract on blood glucose levels of diabetic rats Blood glucose levels in all extract pretreated groups was lower (p<0.05) when compared with the levels in rats that
received alloxan alone, Rats that we are treated with plant extract had normal blood glucose levels that ranged for 73.00±1.5 to 76.00±0.54 mg/dl at the beginning (first day) of experiment. Blood glucose levels in these animals declined during the period of extract administration, but the values obtained were not significant compared to control excluded those that were obtained on the 14th day, p < 0.05

**Conclusion**: Leaves of *F. parviflora* possess blood glucose-lowering effects. In Alloxan-Induced Diabetic Rat, The findings of a study indicated that *F. parviflora* has a significant hypoglycemic effect on Alloxan-induced diabetic rats with no effects in blood glucose levels of normal rats.

*Keywords: Fumaria parviflora; alloxan-induced diabetes rats; hyperglycemia effects.*