Objectives: The objective of this study was to evaluate the antihypertensive potential of Thymoquinone (TQ) and to investigate the underlying mechanism of action.

Methods: Hypertension was induced in Sprague Dawley rats (n = 46) by administration of L-Nitro-L-arginine methyl ester (L-NAME). The rats were divided into six groups (n = 8). TQ2, TQ5, and TQ10 groups were administered TQ with increasing doses of 2, 5, and 10 mg/kg, respectively. The control group received water and the positive control group received enalapril (5 mg/kg). The blood pressure was measured using tail cuff technique weekly for 4 weeks. At the end of the induction period, the rats were sacrificed, and the blood was collected to measure the plasma levels of aldosterone and ACE activity.

Results: TQ reversed the established hypertension in TQ5 and TQ10 groups, and prevented further increases in MAP in TQ2 group. The aldosterone and ACE activity were significantly lower in the TQ5 and TQ10 groups compared to the control and positive control groups.

Conclusion: This study confirms the antihypertensive effect of TQ which did not take place through inhibition of ACE, but through blocking angiotensin II receptors.

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