

The effects of mental exercise and *Nepeta menthoides* on depression like behavior induced by reserpine

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Background and Objective: Many studies demonstrate that cognitive empowerment reduces the risk of depression. Anti-depressant properties of *Nepeta menthoides* as an herbal medicine has also been reported. This study aims to determine the effects of mental exercise and *Nepeta menthoides* on reserpine induced depression in rats.

Materials and Methods: Male rats were divided into 8 groups: 1-Saline, 2-Reserpine, 3-Reserpine + Fluoxetine, 4-*Nepeta*, 5-*Nepeta* + Reserpine, 6-Mental exercise, 7-Mental exercise+ Reserpine, 8-Mental exercise + *Nepeta* + Reserpine. Reserpine was administered at a dose of 0.2 mg/kg for 14 days. At the same time, the animals received *Nepeta* at the dose of 200 mg/kg and radial maze training. Then the results were assessed through forced swimming test (FST), sucrose preference, elevated plus maze and open field tests.

Results: Reserpine enhanced immobility and decreased active swimming time significantly, in the FST, while mental exercise combined with *Nepeta* were able to antagonize the effect of reserpine. Reserpine also lowered sucrose preference ratio which were recovered in mental exercise, *Nepeta* and combined treatment groups. Time spent and % of entrance in to the open arms have been increased by *Nepeta* and mental exercise relative to reserpine. Decreased locomotor activity due to reserpine had been improved in mental exercise and *Nepeta* groups. The mental exercise was also found to increase number of rearing as exploratory behavior.

Conclusion: *Nepeta menthoides* and mental exercise alleviated the depression symptoms caused by Reserpine.

Keywords: Depression, Reserpine, Mental Exercise, *Nepeta menthoides*