ABSTRACT

Depression is a prevalent mental healthcare problem and a common cause of disability worldwide. It is a recurrent, chronic, and incapacitating psychiatric ailment connected to significant mortality and morbidity. The risk factors for the depression were low socioeconomic status, stressful life events, lack of social support, serious or chronic illness (e.g., diabetes, obesity, epilepsy, and multiple sclerosis).

M.oleifera is highly valued and ethno-pharmacologically essential plant. *M. oleifera* has protective effects against degenerative and chronic neuronal diseases. It also possesses an induction effect on the differentiation of myeloid cells and photoreceptors and promotes the development of neurons in the hippocampus and induces a sedative-hypnotic activity and CNS depressant. *O. basilicum* also called Nazabo and used for medicinal purposes due to its antidepressant activity .O. *basilicum* reduces the immobility time in a stressed state of mice.

The aim of the existing study was to assess the action of MO, OB, Imp and Daz on stressed induced mice. Herein, forty male albino mice were used for experimental design. The restrain stress was induced by the wire mesh retainer. After seven day of stress induction mice were given the herbal and synthetic drug treatment intraperitoneally at different doses of MO and OB and Daz20mg/kg,Imp20mg/kg and,MO+Imp(200+20mg/kg),MO+Daz(200+20mg/kg),OB+Imp(250mg/kg+20mg/kg)andOB+Daz(250+20mg/kg) daily for 14 days. The body weights of all mice were recorded daily before treatment. The mice underwent cardiac puncture after herbal and drugs treatment and organ (brain) were removed and weighted. Blood samples were collected for assay of serum cortisol level and tissues of brain organ were analyzed for histological study. In stressed mice, the significant ($^{a}P<0.05$) increase in the immobility time was observed in (FST) and (TST) as compared to the control group. But, significant reduction in the immobility period ($^{b}P<0.05$) in all treated groups on day 21. MO 200 mg /kg and OB 250 mg/kg reduced the serum cortisol levels significantly (5.1±0.74) and (4.7±0.876) and all treated groups and control group shown a significant ($^{b}P< 0.05$) increase in body weights of mice as compared to the stressed group. Moreover, the serum cortisol showed significant ($^{b}P< 0.05$) decrease in all treated groups as compared to the control group. The histopathological

effect appeared in the brain tissue include the reduction in the thickness of both the CA1pyramidial cell layer ,increased the apoptosis of hippocampal neurons .The hippocampal region brain cells are disorganized and lose their actual shape, degeneration of neurons, darkness of nuclei in deep layer, cells lose their pyramidal shape of mice were observed in stressed group. There were also observed the behavioral changes of Imp20 mg/kg and Daz 20mg/kg dosages treatments. In brain there were no significant changes in hippocampal level, pyramidal cells lose their shapes, inter-neurons cells damage and less apoptotic cells were present in MO, OB treated mice. Therefore, it is concluded that *M. oleifera* and *O. basilicum* treatments and their combination possess beneficial antidepressant effects which showed control depression.

Keywords: *M. oelifera, O.basilicum,* Diazepam , Impiramine and antidepressant activity