ABSTRACT

Synthetic drugs have several advanced features and treated a variety of illnesses, but their unusual side effects still constrain their use. Many diseases are treated with herbs in ayurvedic scriptures. In our experiment, fifty four female Swiss albino mice were divided into 9 groups and used to evaluate the antidepressant efficacy of *Cordia gharaf*. Group 1 received normal *ad libitum* conditions throughout the experiment. Group 2 received continuous and alternate stressors for 15 days and then sacrificed for histological and cortisol level analysis. All other groups received various medication doses for 30 days, provided orally following the stress induction. The activities of mice before and after treatment were assessed through three different behavioral tests (FST, TST, OFT). FST and TST showed significant increase in immobility time after stress induction. While, after administrating them with herbal treatment and combination of herb and synthetic drug treatment, they revealed prominent decrease in immobility time which showed their antidepressant effects. Similarly, mice showed lesser number of lines crossed in OFT after stress induction, whereas the number of lines crossed after treatment were significantly increased proving effective antidepressant activity. After the completion of experiment the mice were sacrificed in order to conduct further histological and serum cortisol level examinations. The histology of CA3 hippocampal region of mice brain revealed a decrease in CA3 area thickness, neuronal pyknosis and degeneration, and disorganized brain cells in the stressed group. All of the treated groups, however, exhibited no such severe alterations, disarray, or brain cell destruction. In addition, there was very high serum cortisol level in stressed mice as compared to the normal group. While, the lowered level of serum cortisol in all treated groups also indicate the antidepressant activities. As a result, it was concluded that *C. gharaf* could be safer to use as antidepressant medication, because it had promising effective antidepressant benefits that were demonstrated in our experiment as compared to the control group.

Key words: *Cordia gharaf*, Flavonoids, Fluoxetine, FST, TST, OFT, Herbal medication, Antidepressants