

## Evaluation of Antidepressant Effects of Aerial Parts of *Echium vulgare* on Mice

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### Abstract

#### Objective

In traditional medicine, *Echium* spp., including *E. vulgare* L., are utilized as exhilarant and mood stimulant. On the other hand, depression is a state of intense sadness, melancholia or despair that has advanced to the point of being disruptive to an individual's social functioning and/or activities of daily living. Therefore, finding effective and safe treatments is a hotly contested area in the present time. In this study, the antidepressant effects of aqueous and alcoholic extracts of *Echium vulgare* L. aerial parts were investigated on mice.

#### Materials and Methods

Boiling and percolation were used for aqueous and alcoholic extractions, respectively. Toxicity and antidepressant studies were performed in male BALB/C mice. Three doses of 0.05, 0.2 and 0.35 g/kg for aqueous extracts and five doses of 0.01, 0.04, 0.07, 0.3 and 0.5 g/kg for alcoholic extracts were selected in the forced swimming test employing 8 mice in each group. Open field activity test was used to differentiate antidepressant and locomotion effects. ANOVA and Tukey-Kramer tests were used for statistical analysis.

#### Results

The LD<sub>50</sub> values of aqueous and ethanolic extracts were 1.22 g/kg and 1.21 g/kg, respectively. Aqueous and alcoholic extracts showed significant antidepressant effects starting at 0.05 g/kg and 0.07 g/kg, respectively. Open field test showed no significant changes in the activities of animals which received the ethanolic extract, but the aqueous extract decreased locomotor activities at higher doses.

#### Conclusion

The results showed that the aqueous extract at low doses and ethanolic extract at high doses have significant antidepressant effects. The effects of extracts were similar to imipramine and they may affect neurotransmitters, norepinephrine and serotonin. This herb might be considered as a useful drug in the management of depression.

**Key words:** Antidepressant, *Echium vulgare* L, Forced swimming test, Imipramine, Open field test

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