**ABSTRACT**

**Objective:** The aim of the present study is to investigate the effects of *Hordeum vulgare* aqueous extract (HVE) in a sub-chronic depression rat model. **Methods:** Thirty male rats were randomly divided into five groups: the first group served as a control group; the second group received i.p. injection of reserpine (Res) (0.5 mg/ kg) for 20 days, the third group received i.p. injection of reserpine plus fluoxetine (Res + Flux) (10 mg/kg p.o.) for 20 days, the fourth group received i.p. injection

of Res plus HVE (1,000 mg/kg p.o.), and the fifth group received Res + Flus +HVE. Behavioral tests were measured on the 21st day of the experiment, then rats were decapitated to determine liver function [alanine transaminase, aspartate transaminase, TP, Alb, Glob, A/G), brain monoamines and their metabolites (NE, DA, 5-HT, HVA, DOPAC, 5HIAA), oxidative and nitrositive stress markers (MDA, glutathione, oxidized glutathione, NO, SOD, 8OHdG) and purinergic cell capacity (ATP, ADP, AMP). **Results:** Obtained data showed neuro-degenerative effect of Res and deteriorative manifestation in liver function. Moreover, flux treatment showed an attenuated deterioration, manifested by Res for monoamines and its metabolites, and subsequently stabilized behaviors and decreased depression status with behavioral tests indicators. On the other hand, it showed initial indicators of liver alteration, presented by serum liver function and histological examination. In addition, treatment

with HVE showed amelioration for behavioral, neurochemical functions, and decreased oxidative stress. The results were confirmed by the histological examination. **Conclusion**: HVE ameliorate depression induced by Res, stimulates monoamines and antioxidant status, decrease oxidonitrositive markers and increases cell energy capacity without side effects on liver, contrasting to selective serotonin re-uptake inhibitors, which produces initial indicators of liver damages.

**Key words:** Depression, Fluxitine, Hordeum vulgare, Rats, Resrpine