

## ***Effects of propolis extract on pain induced by formalin in male mice***

**Nematollah Gheibi<sup>1</sup>, Mohammad Sofiabadi\*<sup>2</sup>, Tara Safari<sup>3</sup>**

1. Department of Biophysics, School of Paramedical Sciences, Qazvin University of Medical Sciences, Qazvin, Iran.

2. Department of Physiology, School of Medicine, Qazvin University of Medical Sciences, Qazvin, Iran.

3. Department of Anesthesiology, School of Paramedical Sciences, Qazvin University of Medical Sciences, Qazvin, Iran.

**\*Corresponding Address:** Faculty of Medicine, Qazvin University of Medical Science, Qazvin, Iran. Tel: +982833336001

**Email address:** mohasofi@yahoo.com

### ***Abstract***

**Background & Aim:** Propolis is a natural material that is produced by the honey bee and has a variety of beneficial properties, including an anti-inflammatory effect. In this study, the effect of oral administration of ethanolic extract of propolis was investigated on formalin-induced inflammatory pain in male mice.

**Methods:** This experimental study was undergone in 2016 in the Qazvin University of Medical Sciences and 40 mice were divided randomly in the control, sham (vehicle) and three propolis groups (50, 100 and 200 mg/kg, respectively). One hour after gavage of the vehicle or propolis, 50 µl formalin 2.5% was injected into the right hind paw of each mice and pain symptoms were observed and recorded for 60 minutes (Acute phase, Interphase and chronic phase). Data were analyzed by using SPSS 16 software, ANOVA and Tukey test.  $P < 0.05$  was considered as significant level.

**Results:** In the acute phase of the test, propolis reduced the pain at 200 mg/kg dosage, compared with the control ( $P < 0.05$ ). Prescription of propolis in the chronic phase leads to a significant reduction of pain compared to the control at doses of 50 and 100 mg/kg ( $P < 0.05$ ) and especially at a dose of 200 mg/kg ( $P < 0.01$ ).

**Conclusion:** Propolis administration reduces pain in the acute and chronic phases of the formalin test. Therefore, it has a central and peripheral analgesic effect.

**Keywords:** Propolis, Formalin test, Mice.