

IMSEC 2016

1st International Mediterranean **1. Uluslararası Akdeniz**
SCIENCE AND ENGINEERING CONGRESS **BİLİM VE MÜHENDİSLİK KONGRESİ**
OCTOBER 26-28, 2016 26-28 EKİM 2016
ÇUKUROVA UNIVERSITY, CONGRESS CENTER, ADANA / TURKEY ÇUKUROVA ÜNİVERSİTESİ, KONGRE MERKEZİ, ADANA/TÜRKİYE

1st International Mediterranean
**SCIENCE AND ENGINEERING
CONGRESS**

OCTOBER
26-28, 2016
ADANA
TURKEY

Proceedings Book

Organizer of the Congress
Çukurova University



<http://www.imsec2016.org>

IMSEC 2016

1st International Mediterranean
SCIENCE AND ENGINEERING CONGRESS
OCTOBER 26-28, 2016
ÇUKUROVA UNIVERSITY, CONGRESS CENTER, ADANA /TURKEY

1. Uluslararası Akdeniz
BİLİM VE MÜHENDİSLİK KONGRESİ
26-28 EKİM 2016
ÇUKUROVA ÜNİVERSİTESİ, KONGRE MERKEZİ, ADANA/TÜRKİYE

1. Uluslararası Akdeniz
**BİLİM ve MÜHENDİSLİK
KONGRESİ**

Bildiri Kitabı

Editörler

Doç. Dr. Mustafa Özcanlı
Doç. Dr. Hasan Serin
Arş. Gör. Ahmet Çalık



<http://www.imsec2016.org>

Electrical activity changes induced by thiacloprid insecticide in heart of rats

Yusuf Çamlıca¹, Tamer Çoşkun¹, Ülkü Çömelekoğlu², Erkan Özbay²

¹Department of Biology, Faculty of Science and Letters, Mersin University, Mersin, Turkey

²Department of Biophysics, Faculty of Medicine, Mersin University, Mersin, Turkey

Abstract

Thiacloprid is a new neonicotinoid insecticide used for insect control in agriculture, veterinary and public health. It acts by disrupting the insect's nervous system by inhibition of nicotinic acetylcholine receptors. It has also potential toxicity for non-target organisms. The present study was planned to explore the possible toxic effect of thiacloprid on the electrical activity of heart. Thirty-two adult male Wistar albino rats weighing 200-250 g were used. They were divided into four groups of eight each: Group I (control) received only vehicle (0.5 mL physiological saline), group II received low dose of thiacloprid (5 mg/kg bw in 0.5 mL saline), group III received medium dose of thiacloprid (7.5 mg/kg bw in 0.5 mL saline) and group IV received high dose of thiacloprid (10 mg/kg bw in 0.5 mL saline). Rats were treated were intraperitonally one dose per 48 h given for 21 days. The electrical activity of the heart was recorded using BIOPAC MP 100 Acquisition system. The signal were digitized with 16-bit analog-to-digital converter at a sampling rate of 1500 samples/s. BIOPAC Acknowledge Analysis Software was used to measure the heart rate, the amplitude and the duration of the P wave, QRS complex and T wave. Amplitude and duration of T wave were significantly increased compared to control in all of dose groups. The heart rate was significantly lower ($p < 0.05$) in groups II, III and IV than the control group. In conclusion, these data suggest that thiacloprid might cause alteration in rhythmic characteristics of mammalian heart. Therefore, these insecticides should be used carefully in agriculture and other areas of pest control.

Key words: Thiacloprid, EKG, heart, rat.