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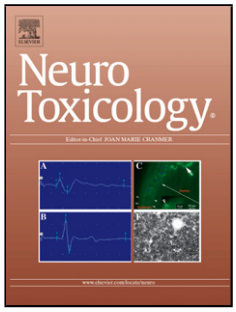

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PII: S0161-813X(18)30110-4
DOI: https://doi.org/10.1016/j.neuro.2018.05.005
Reference: NEUTOX 2340

To appear in: *NEUTOX*

Received date: 8-4-2018
Revised date: 4-5-2018
Accepted date: 25-5-2018

Please cite this article as: Noshy PA, Elhady MA, Khalaf AAA, Kamel MM, Hassanen EI, AMELIORATIVE EFFECT OF CARVACROL AGAINST PROPICONAZOLE-INDUCED NEUROBEHAVIORAL TOXICITY IN RATS, *Neurotoxicology* (2018), https://doi.org/10.1016/j.neuro.2018.05.005

AMELIORATIVE EFFECT OF CARVACROL AGAINST PROPICONAZOLE-INDUCED NEUROBEHAVIORAL TOXICITY IN RATS

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Highlights:

- Rats were exposed to propiconazole and/or carvacrol to evaluate the neurobehavioral toxic effects of propiconazole and the neuroprotective role of carvacrol.
- Propiconazole induced a negative impact on psychological, motor and cognitive brain functions.
- Propiconazole also adversely affected the measured oxidative stress and lipid peroxidation parameters in brain tissue.
- Histopathological examination of the cerebrum, cerebellum, and hippocampus showed various histopathological lesions after exposure to propiconazole which were confirmed by immunohistochemical examination.
- Co-administration of carvacrol ameliorated most of the undesirable effects of propiconazole.

Abstract:

Propiconazole (PCZ) is a triazole fungicide extensively used in agriculture. Carvacrol (CAR) is a naturally occurring phenolic monoterpene which has various biological and pharmacological effects. The present study was designed to investigate the neurobehavioral toxic effects of PCZ in albino rats and to evaluate the ameliorative role of CAR against such toxic effects. Sixty adult male rats were used in this investigation; they were randomly and equally divided into 4 groups: control group, PCZ group, CAR group and PCZ + CAR group. PCZ (75 mg/kg) and/or CAR (50 mg/kg) were administered daily by oral gavage for 8 weeks. Behavioral investigation clearly demonstrated the negative impact of PCZ on psychological, motor and cognitive brain functions. Exposure to PCZ also adversely affected the measured oxidative stress and lipid peroxidation parameters in brain tissue. A significant decrease in activity of acetylcholinesterase enzyme in neural tissue was also observed in PCZ-exposed rats. Histopathological examination of the cerebrum, cerebellum, and hippocampus showed various histopathological lesions after exposure to PCZ which were confirmed by immunohistochemical examination. On the other hand, co-administration of CAR ameliorated most of the undesirable effects of PCZ.