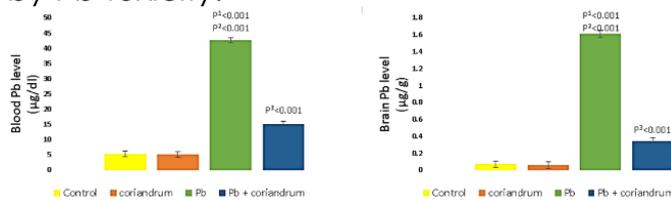


Morphohistometric analysis of the effects of *Coriandrum sativum* on Neurotoxicity

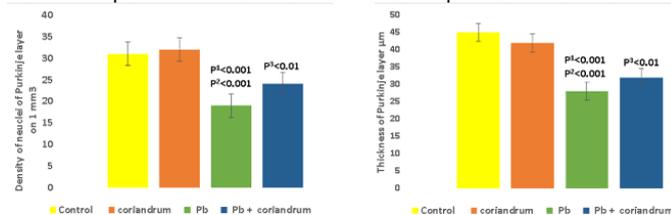
Hesham N. Mustafa

Anatomy Department, Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia. Email: hesham977@gmail.com

Natural compounds can act as metal chelators and oxygen free radical scavengers, which allows them to be used as bioactive antagonists' heavy metals neurotoxicity. The aim of the study to analyze the morphometric effects of coriandrum sativum on Lead induced neurotoxicity. Forty Sprague-Dawley albino rats were divided into four equal groups (ten rats in each group): control group; coriander group: received aqueous coriandrum sativum extracts daily (600 mg/kg BW /60 days orally); Pb group: received a daily dose of lead acetate (Pb) (10 mg/kg BW /60 days orally); Pb + coriandrum group: received: aqueous coriandrum sativum extract (600 mg/kg BW) prior to 10 mg/kg BW of Pb. The data exhibited an increase in oxidative stress markers MDA levels and a decrease in the antioxidant enzymes activities (SOD, CAT, GPx) in Pb group and these effects were reversed with coriandrum sativum co-administration. The cerebellar cortex and all layers of the somatosensory cortex thickness and density of nuclei were diminished. The morphometrical measurements were corrected with coriandrum sativum. From the findings of the current study, coriandrum sativum corrected the structural and functional variations in the cerebellar cortex and somatosensory cortex as it possesses chelating and antioxidant potentials. This work agreed with the previous reports that propose the defensive properties of coriandrum sativum on Pb deposition [1, 2]. Aqueous extracts of coriandrum sativum produced a good significant variation in most of the evaluated parameters (oxidative stress marker, antioxidants enzymes and histological alternations) and slow down the oxidative damage induced by Pb toxicity.



Graph 1. Effect of Pb and coriandrum co-administration on Pb concentrations (Mean ± SD). P1: compared to control. P2: compared to coriandrum. P3: compared to Pb.



Graph. Cerebellar layers density of nuclei and thickness (Mean ± SD).

References

1. Velaga, M.K., et al., *Hydroalcoholic seed extract of Coriandrum sativum (Coriander) alleviates lead-induced oxidative stress in different regions of rat brain*. Biol Trace Elem Res, 2014. **159**(1-3): p. 351-63.
2. Tellez-Lopez, M.A., et al., *Evaluation of the Chelating Effect of Methanolic Extract of Coriandrum Sativum and Its Fractions on Wistar Rats Poisoned with Lead Acetate*. Afr J Tradit Complement Altern Med, 2017. **14**(2): p. 92-102.