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# EFFECT OF *Rauvolfia vomitoria* ON MERCURY-INDUCED CHANGES ON THE FINE MOTOR COORDINATION AND HISTOLOGY OF THE CEREBELLUM IN WISTAR RATS

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## ABSTRACT

The present study was aimed at evaluating the effect of the aqueous extract of *Rauvolfia vomitoria* (RV) on mercury-induced changes on the cerebellum of adult Wistar rats. Thirty male adult Wistar rats were divided into six groups of five animals each. The control was administered with distilled water for 35 days, mercury chloride ($HgCl_2$, 49.8mg/kg) body weight, RV (750mg/kg); $HgCl_2$ (49.8mg/kg) and low dose of RV (250mg/kg), $HgCl_2$ (49.8mg/kg) and medium dose of RV (500mg/kg) and $HgCl_2$ (49.8mg/kg) and high dose of RV (750mg/kg). The administration lasted for 35 days through oral route daily with $HgCl_2$ given for 21 days and RV was for 14 days for the treated groups. Walking track equipment was used to test for gait and motor coordination and the animals were humanely sacrificed after the animals were anaesthetised with chloroform while tissue samples were harvested by opening the mid sagittal suture for histological studies. The result of gait and motor coordination test showed decrease in stride length, increase in sway length and stance length after mercuric chloride administration but stride length increased while sway and stances length decreased after the administration of RV. Observation of the cerebellum showed normal histology in the control, while mercury control, RV control, mercuric chloride and low dose RV, mercuric chloride and medium dose RV, and mercuric chloride and high dose RV groups showed some degenerative and cellular changes. The administration of RV has shown to ameliorate the degenerative changes in the cerebellum caused by mercuric chloride toxicity in Wistar rats.

**Key words:** *Mercuric chloride, Cerebellum, Rauvolfia vomitoria, Wistar rats*

## INTRODUCTION

Mercury and its compounds can be obtained from Industrial sources, fossils fuels power, mining co-operations, and natural forms such as mercury chloride that is found in higher densities in rocks and volcanic activities (FAO 1994; Park et al. 2000). Burning of fossil fuels such as petrol and gas, fumes, battery disposals, broken mercury thermometer and coal combustion are other high sources of emitting mercury and its compounds (Booth and Zeller 2005). Consumer products such as photographic plates and toners contain high amount of mercury chloride (Goyer 1986). Some cosmetics also contain mercury. Examples include creams, perfumes, soaps and mascara (Adepoju-Bello et al. 2012).

There are many routes of exposure to mercuric compounds but the evidence of exposure is dependent on the levels of toxicity (Vimercati and Pesola 2001; WHO 2005). These exposure routes include; oral exposure via consumption of food

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