HISTOLOGICAL STUDY ON THE EFFECT OF FRUIT EXTRACT OF *Phoenix dactylifera (*DATE PALM*) L.* ON MERCURY–INDUCED CEREBRAL AND HIPPOCAMPAL DAMAGE IN ADULT WISTAR RATS

ABSTRACT

BACKGROUND; Management of cognitive and anxiety disorders like dementia and Alzheimer's disease has been challenging since no potential drug is available with proven efficacy. This has prompted many researchers to evaluate new compounds in the hope that other anxiolytic and nootropic drugs will have less undesirable effects.

AIM: This study was aimed to histologically evaluate the ameliorative effect of aqueous fruit extract of *Phoenix dactylifera* (AFPD) against mercury–induced cerebral and hippocampal damage in adult Wistar rats.

MATERIALS AND METHODS: Twenty-four (24) Wistar rats of either sex (150-200 g) were divided into six groups (I –VI) of four rats each. Group I served as control, administered distilled water (1 ml/kg, p.o), while groups II–VI were treatment groups. Brain damage was experimentally induced in Wistar rats by administering mercuric chloride (MCL). Group II was administered MCL (5 mg/kg, p.o). Group III was administered vitamin C (100 mg/kg, p.o), while groups VI–VI were administered AFPD (250 mg/kg, 500 mg/kg and 1000 mg/kg, p.o, respectively). Treatment groups were concomitantly administered MCL (5 mg/kg, p.o) for a period of 2 weeks. Histopathological analysis of brain sections, applying routine (H & E) staining techniques, was employed to study the activity of AFPD on the rats' cerebral cortex and CA1 and CA3 regions of hippocampus.

RESULTS: Histopathological examination of brain sections revealed neuronal degeneration of cerebral and hippocampal cells such as, neuronal shrinkage, perineuronal vacuolation, gliosis and alteration in the general histoarchitecture of cerebral cortex and hippocampus in MCL treated group. The administration of AFPD remarkably ameliorated neuronal damage induced by MCL administration, dose dependently, when compared with tissue sections of the control.

CONCLUSION: Findings revealed that AFPD is of ameliorative potentials on heavy metal-induced cerebral and hippocampal damage in Wistar rats.

Key words: Ameliorative, Cerebral cortex, Hippocampus, *Phoenix dactylifera*, Wistar rats