

**Original Article**

**Pleurotus tuber regium: ethanolic extract improves spatial learning and memory in rats but alters cerebral cytology**

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**ABSTRACT**

This work was carried out to determine possible toxic effects of *Pleurotus tuber regium* (an edible fungus) on the histology of the cerebral cortex (prefrontal cortex), spatial learning and memory in rats after its consumption. Twenty one adult Wistar rats weighing 150-200g were used. The animals were randomly divided into three groups: control, low and high test groups. The control group received distilled water while the test groups received 25mg/kg and 50mg/kg of the ethanolic extracts of *Pleurotus tuber regium* as 0.5 ml and 1ml for the low and high doses, respectively. Administration was done orally with the aid of orogastric tube for 4 weeks. The tests for visuo spatial learning and memory were carried out concurrently with the administration. The animals were sacrificed 24 hours after the last administration after being anaesthetized with diethyl ether. The brains were preserved in buffered formaldehyde, and were processed and stained with haematoxylin and eosin method. Results showed dose dependent atrophy in the cells of the cerebrum. The swim latency and quadrant duration were significantly higher ( $p < 0.05$ ) in the 50 mg/kg group (high dose group) implying that the extract had a dose dependent enhancing effect on learning and memory. In conclusion, the extract of *Pleurotus tuber regium* improved learning and memory in rats but presented untoward effect at a higher dose.

Keywords: *Pleurotus tuber regium*, Ethanolic extract, Cerebral cytology, Neurobehaviour, Wistar rats

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