

Evaluation of anti-histamine and membrane stabilization potentials on red blood cells of acetone extract of *Pleurotus ostreatus*

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We have reported the anti-inflammatory activity of *Pleurotus ostreatus* using carrageenan induced rat paw edema model. This study evaluates anti-histamine and membrane stabilization potentials of acetone extract (AE) of *P. ostreatus*. Rats were assigned to three groups, and fur on the left posterior lateral side was removed. After 24 hours, rats were treated with AE (500mg/kg), chlorpheniramine (0.67mg/kg) and distilled water respectively. After 1 hour, histamine (50µL of 200µg/mL) was subcutaneously injected to the shaven area and the area of the wheal formed was determined after 2 minutes. A ten-fold dilution series ranging from 0.001 to 1000µg/mL of AE and aspirin was made using phosphate buffered saline (PBS) whereas PBS was the control. The vials containing rat blood and different concentrations of AE, aspirin and PBS (1mL each) were incubated at 37°C and centrifuged. The supernatants were removed and the cells were resuspended in PBS and incubated at 54°C, centrifuged and optical density (OD) of supernatants was measured at 540 nm. Percent inhibition of haemolysis was calculated with respect to the controls. Oral treatment with *P. ostreatus* and chlorpheniramine significantly ($p < 0.0001$) reduced the area of wheal formed ($52.1 \pm 1.1\%$ and $57.9 \pm 1.5\%$ respectively) on the skin. All dilutions of *P. ostreatus* except 0.001µg/mL (lowest) significantly inhibited the heat-induced haemolysis of rat erythrocytes *in vitro* indicating membrane stabilizing activity. Protection against heat-induced lysis of RBC is often extrapolated to stabilization of lysosomal membranes, and used as a measure of anti-inflammatory activity. Therefore, the ability of *P. ostreatus* to protect RBC against heat-induced lysis indicates its ability to stabilize the lysosomal membrane and thereby inhibit the inflammation. Therefore, anti-histamine and membrane stabilizing activities may contribute as possible mechanisms of anti-inflammatory activity of *P. ostreatus*.

Key words: *Pleurotus ostreatus*, anti-inflammatory, antihistamine, membrane stabilization

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