256

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Oral hypoglycaemic and anti-inflammatory activities of culinary mushrooms *Pleurotus osteratus and P.cystidiosus*

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Pleurotus ostreatus and *P. cystidiosus* are culinary-medicinal mushrooms which are grown worldwide. These are commonly known as American oyster and Abalone respectively. Various properties of *P. ostreatus* and *P. cystidiosus* have been reported in literature such as antinociceptive, hypocholesterolaemic, antioxidant and antitumour effects. The study investigates the oral hypoglycaemic activity of *P. ostreatus* and *P. cystidiosus* and the anti-inflammatory activity of *P. ostreatus*.

Oral hypoglycaemic activity of suspensions of freeze-dried and powdered *P. ostreatus* and *P. cystidiosus* was investigated in normal and alloxan-induced diabetic Wistar rats. Both mushrooms were possessed with significant hypoglycaemic activity which was comparable with metformin and glibenclamide. Both short and long term administration of *P. ostreatus* and *P. cystidiosus* exerted an apparent control on the homeostasis of blood glucose of diabetic rats.
The mechanisms by which *P. ostreatus* and *P. cystidiosus* exert the oral hypoglycaemic activity were increasing glucokinase activity, increasing insulin secretion, promoting glycogen synthesis and increasing glucose utilization by peripheral tissues. Significant decrease in both fasting and postprandial serum glucose levels in healthy volunteers and diabetic patients on diet control after administration of *P.ostreatus* and *P.cystidiosus* suggest that long-term consumption of the mushrooms may be beneficial to mankind.

The anti-inflammatory potential of *P. ostreatus* in normal and alloxan- induced diabetic Wistar rats was investigated using the carrageenan-induced rat paw oedema model. The mushroom showed significant ($p < 0.05$) reduction of oedema at doses of 250 – 1000 mg/kg which was comparable to that of indomethacin. Further the mushroom exerted protective effects on the inflammatory pathologies in rats with diabetes. The study examined the potential anti-inflammatory role of *P. ostreatus* which is mediated by suppression of NO production, inhibition of cell migration to the site of inflammation and by antihistamine and membrane stabilizing activities. Novel compounds were isolated and characterized from *P. ostreatus* with significant biological activity. These activities make the mushrooms potentially useful as functional food ingredients.