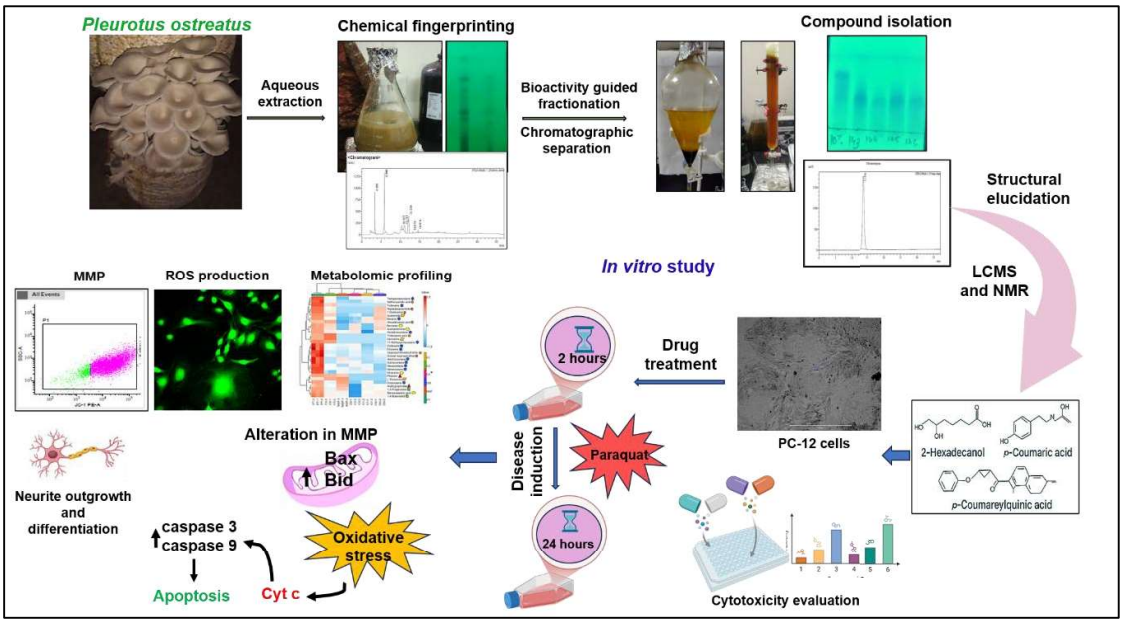
A PROCESS FOR THE PREPARATION OF AN ACTIVE FRACTION AND A COMBINATION OF BIOACTIVE MOLECULES FROM *PLEUROTUS OSTREATUS* FOR PREVENTING TOXIC CHEMICAL-INDUCED NEURODEGENERATION

Brief description:

The present invention deciphers the neuroprotective properties of *Pleurotus ostreatus*, a commonly consumed edible mushroom.

Details about the technology:

The present invention details the preparation of an enriched poly-biochemical formulation from *Pleurotus ostreatus* fresh fruiting body, highlighting its neuroprotective efficacy. The invention outlines the preparation and extraction processes of developing fractions and isolating bioactive molecules. Comprehensive in vitro screening was conducted to evaluate its activity in the PC-12 cell line.



Schematic representation of the process

The methodology of this process involves the following steps:

The present invention provides a process for preparing a neuroprotective *n*-butanol fraction (POBF) from *Pleurotus ostreatus*, comprising:

a. Extracting crushed fresh fruiting bodies with water *via* cold maceration to obtain an aqueous extract (POAE).

b. defatting the POAE with n-hexane.

c. partitioning the defatted POAE sequentially with n-hexane, ethyl acetate, and n-butanol to obtain the POBF with a yield of about 32%.

d. Bioactivity-guided fractionation for obtaining the most active fraction.

e. Isolation and identification of the most active biomolecules.

f. *In vitro* and *invivo* assessment of the bioactive molecules.

What problem it solves/applicability of the technology:

The present invention provides a neuroprotective composition comprising 2-hexadecanol, *p*-coumaric acid, and *p*-coumaroylquinic acid, each isolated from *Pleurotus ostreatus* and present at a concentration of 0.33 µg/mL. This composition demonstrates a synergistic effect in inhibiting paraquat-induced reactive oxygen species (ROS), mitochondrial depolarization, and apoptosis in PC-12 cells. Additionally, it restores cell viability to at least 83% in paraquat-treated PC-12 cells and improves worm viability to at least 84% in paraquat-treated *C. elegans* at 0.52 µg/mL.

Patent status:

Title of Patent: A process for the preparation of an active fraction and a combination of bioactive molecules from *Pleurotus ostreatus* for preventing toxic chemical-induced neurodegeneration

Patent Assignee: IASST, Guwahati

Current Status: Patent filed on 01.12.2025, **Patent application No.** 202531119868

Contact details of the concerned scientist for further information:

Prof. Ashis Kumar Mukherjee

Institute of Advanced Study in Science and Technology,

Paschim Boragaon Garchuk, Guwahati, Assam 781035, India

Phone number: +91-78960-03886

E-mail: akm[at]tezu[dot]ernet[dot]in