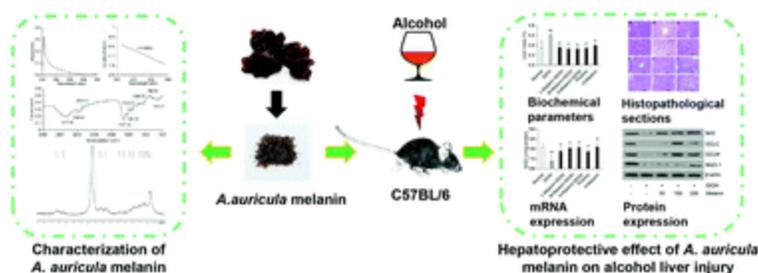


Characterization of natural melanin from *Auricularia auricula* and its hepatoprotective effect on acute alcohol liver injury in mice

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Abstract

This study characterized the natural melanin from *Auricularia auricula* and investigated its hepatoprotective effect on mice with acute alcoholic liver injury. The characterization of the melanin was analyzed based on elemental analysis, gel permeation chromatography (GPC), UV-visible spectroscopy (UV-visible), infrared spectrum (IR) and nuclear magnetic resonance spectra (NMR). To determine the liver protective effect of *Auricularia auricula* melanin, mice were administered with the melanin once daily for 3 weeks before ethanol induced liver injury. Biochemical parameters of liver function, histopathological sections, mRNA and

protein expression of antioxidant enzyme were compared between mice with or without the melanin administered. Results showed that *A. auricula* melanin was a eumelanin and the average molecular weight was 48.99 kDa. The melanin can protect the mice from ethanol-induced liver injury by extending the duration of the righting reflex, and shortening the duration of the recovery. The liver index, serum alanine aminotransferase (ALT), aspartate aminotransferase (AST), γ -glutamyl transpeptidase (γ -GT) and liver malondialdehyde (MDA) levels in mice treated with the melanin were significantly decreased. At the same time, the levels of liver alcohol dehydrogenase (ADH), and antioxidase such as catalase (CAT), and superoxide dismutase (SOD) were increased. Its protective effect may be related to the activation of nuclear factor E2-related factor 2 (Nrf2) and its downstream antioxidant enzymes such as glutamate cysteine ligase catalytic (GCLC), glutamate cysteine ligase modifier (GCLM), and NADP(H) quinone oxidoreductase 1 (NQO-1). These results suggested that *A. auricula* melanin may be an effective strategy to alleviate alcohol-induced liver damage.

