
Red mold rice water extracts to inhibit adipogenesis in vitro

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Monascus-fermented products are being used as food and medicine for over thousands of years. Due to the water solubility, adipogenesis inhibitors from *Monascus*-fermented products can be used in food or nutraceutical industry. This study was conducted to investigate the anti-adipogenic effects of the water extracts of *Monascus pilosus* NBRC4507 fermented red mold rice (RMR) using 3T3-L1 cells. RMR was prepared by cultivating *M. pilosus* NBRC4507 in steamed rice for 7, 10, 14, 17 and 21 days at 30 °C. The water extracts of RMR were concentrated and the resultant concentrate was freeze dried and dissolved in phosphate buffer. RMR water extracts (0.5, 0.75 and 1.0 mg/mL) were prepared using each cultivated samples at 30 °C in differentiation medium. RMR extracts on lipid accumulation inhibition in 3T3L-1 cells was measured using Oil-red O staining method. The lipid accumulation suppression by 1.0 mg/mL RMR extract fermented with *M. pilosus* NBRC4507 for 14 days was significantly higher than that of 5 µM lovastatin ($p < 0.01$). Further, water soluble tetrazolium salts (WST-1) assay confirmed zero cytotoxic effect on 3T3L-1 cells. Thin layer chromatography confirmed water extracts were free from Lovastatin and Citrinin. RMR fermented for 14 days at 30 °C is a potential source to inhibit adipogenesis in vitro.

Keywords: *Monascus pilosus*, Red mold rice, Adipogenesis, 3T3L-1 cell, Lovastatin

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