

Involvement of CYP450 system in hepatoprotective activity of Malaysian Agricultural Research and Development Institute (MARDI)-produced virgin coconut oils.

Abstract

The present study aims to determine the role of cytochrome P450 (CYP450) enzyme system in hepatoprotective activity of virgin coconut oils produced by Malaysian Agricultural Research and Development Institute (MARDI). Paracetamol (PCM)-induced hepatotoxic rat was used as a model. Liver injury induced by 3 g/kg PCM increased the liver weight and liver enzymes (e.g. alanine transaminase (ALT), aspartate transaminase (AST) and alkaline phosphate (ALP)) and decreased cell viability indicating liver damage. Histological observation also confirms liver damage indicated by the presence of inflammations and necrosis. Pre-treatment with VCOA or VCOB reversed the significantly ($P < 0.05$) reversed PCM toxic effect. Groups pre-treated with virgin coconut oil (VCOs) followed by inhibitor or inducer of CYP450 demonstrated significant ($P < 0.05$) increase in liver weight, liver enzymes levels and decrease in cell viability, which are, however, significantly ($P < 0.05$) less remarkable as compared to group treated with PCM alone. In conclusion, VCO possessed hepatoprotective effect, which is believed to be mediated via a non-CYP450 system and might be associated partly with the antioxidant potential of the oil. Further studies are warranted to determine the actual mechanisms of hepatoprotection involved.

Keyword: Malaysian Agricultural Research and Development Institute (MARDI); Virgin coconut oil; Livertoxicity; Paracetamol; Cytochrome P450; Hepatoprotection.