

## Cytotoxicity of the *Mallotus repandus* Extract and Its Active Constituent Bergenin on Human HepG2 Cells

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### Abstract:

*Mallotus repandus* (Willd.) Muell. Arg. or Ko-Klan (in Thai) has been basically used in Thai traditional medicine for treatment of inflammation. Bergenin is a major active constituent of *M. repandus* which possesses pharmacological activities including anti-oxidant, hepatoprotective, and anti-inflammatory activities. However, only few studies on toxicity of bergenin and *M. repandus* are reported. The present study aimed to evaluate cytotoxicity of the aqueous extract of *M. repandus* stem and bergenin in HepG2 cells. HepG2 cells were seeded in a 6-well plate ( $5 \times 10^5$  cells/well) before treatments with the extract (250, 500, and 1,000  $\mu\text{g/ml}$ ) or bergenin (37.5, 75, 150, and 300  $\mu\text{M}$ ) for 24 hours. Cellular injury biomarkers: lactate dehydrogenase (LDH), aspartate aminotransferase (AST), alanine aminotransferase (ALT), and malondialdehyde (MDA) and antioxidant status biomarkers: total glutathione (GSH) content, and superoxide dismutase (SOD) and catalase (CAT) activities were determined. %LDH toxicity includes the AST, ALT, and MDA levels were unchanged after treating the HepG2 cells with all doses of the extract and bergenin. Likewise, all treatments of HepG2 cells with either the extract or bergenin did not deplete the total GSH content, and decrease the SOD and CAT activities, comparable to the control. In conclusion, all doses of the *M. repandus* extract and bergenin did not exhibit cytotoxicity to HepG2 cells; neither cell injury nor antioxidant status were disturbed. Therefore, this study provided the non-toxic dose range of the *M. repandus* extract and bergenin, which might be useful for further development of the *M. repandus*-contained health product.

**Keywords:** Toxicity, cellular injury, antioxidant, biomarkers