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**Optimization of the dosage of *Phyllanthus maderaspatensis* (Family: Euphorbeaceae) to improve serum lipid profile in Wistar rats (*Mus norvegicus albinus*)**

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Over accumulation of cholesterol in blood leads to hypercholesterolemia with severe health consequences. A recent study revealed the anti-hypercholesterolemiceffectiveness of *Phyllanthus maderaspatensis*. The present study investigated the dose-dependent response of the crude methanolic extract of *P. maderaspatensis* (CME-PM) in Wistar rats, to determine its effective dose. A hypercholesterol diet was orally introduced to male rats (n = 6/group) until the total cholesterol levels were significantly increased ( $p \leq 0.05$ ) (around 123.45 mg/dl) compared with the rats treated with a standard diet. Since 2000mg/kg is the least acute dose recommended by OECD guideline No. 423, three CME-PM doses below that level, 400, 800 and 1200 mg/kg were selected, to be administered orally once a day for forty two days. Serum lipid parameters were measured at 0<sup>th</sup>, 14<sup>th</sup>, 28<sup>th</sup> and 42<sup>nd</sup> days after treatments. Increasing CME-PM concentrations showed dose dependent negative responses with total cholesterol, triglycerides and LDL-C, as well as a dose dependent positive response with HDL-C ( $p \leq 0.05$ ). When compared with the cholesterolemic untreated group, the levels of total cholesterol, triglyceride and LDL-C were lowered significantly in all three doses ( $p \leq 0.05$ ) and this trend increased with the time. With HDL-C the response increased ( $p \leq 0.05$ ) by all three doses and this response also increased with the time. When a regression analysis was performed for the three doses at 42<sup>nd</sup> day, correlations were found for total cholesterol ( $r^2 = 0.90$ ), triglyceride ( $r^2 = 0.97$ ), HDL-C ( $r^2 = 0.83$ ) and LDL ( $r^2 = 0.87$ ). By the 42<sup>nd</sup> day 1200mg/kg dose had insignificant ( $p > 0.05$ ) total cholesterol levels, triglyceride and HDL-C compared with the negative control. LDL-C level was not lowered up to the level of negative control even by 42<sup>nd</sup> day. Results revealed that, 1200mg/kg dose of CME-PM is the effective dose for reducing total cholesterol and triglyceride and elevating HDL-C up to normal level.

Keywords: Cholesterol, Wistar rats, *Phyllanthus maderaspatensis*

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