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Antidyslipidemic and antioxidant potential of xanthone and secoiridoid glycosides of hot water extract of *Swertia chirayita*, a potent antidiabetic, and their docking study

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The hot water extracts of *Swertia chirayita*, a potent antidiabetic, were tested *in vivo* for their antidyslipidemic activity in triton WR-1339 and high fat diet (HFD) induced dyslipidemic Charles foster rats and *in vitro* for their antioxidant activity. Further, solvent fractionation and isolation resulted in identification of antidyslipidemic xanthone and secoiridoid glycosides, mangiferin (MG) and amarogentin (AM). Treatment of triton treated hyperlipidemic rats with MG and AM caused reduction in plasma levels of LDL (24, 26%) and VLDL (19, 25%) as well as increase in levels of HDL (18, 22%) respectively, at 100 and 200 mg/kg doses. In rats with HFD, MG and AM significantly reduced levels of VLDL lipids (17-26% and 20-27%) as well as LDL-TC (22-27% and 30%) in hyperlipidemic rats at 100 and 200 mg/kg doses. MG and AM also showed inhibition of superoxide anion, hydroxyl free radicals and microsomal lipid peroxidation by 24 & 28%, 25 & 31% and 27 & 25%, respectively. In addition, in comparison to pravastatin, both MG and AM also demonstrated more effective inhibition of HMG-CoA reductase at 5 μM and 10 μM, which was further confirmed by docking studies.

Biography

Rasna Gupta has completed her M.Sc. in Biochemistry at age of 21 years from C.S.J.M. University, Kanpur (UP) India and had completed her three months dissertation work from CSIR-NBRI, Lucknow. She has qualified CSIR-NET (13 rank) and GATE (96%) three times. She has research experience of 1.5 years and also worked as Project Assistant for 6 months in CSIR-NBRI, Lucknow. The presented research work was done as Project Assistant under the guidance of R. K. Asthana, Ph.D., Medicinal and Process Chemistry Division, CSIR-CDRI, Lucknow, India.