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Coumaroyl Lupendioic acid attenuates oxidative stress in adjuvant induced arthritis

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The present study was intended to elucidate the effect of coumaroyl lupendioic acid, a new lupane-type triterpene isolated from *Careya arborea* (Lecythidaceae) stem bark, on the biomarkers of oxidative stress in Complete Freund's Adjuvant (CFA)-induced arthritic rats. Arthritis was induced by injecting 0.1 ml of CFA (5 mg/ml of heat killed *Mycobacterium tuberculosis*) into the sub plantar region of the left hind paw. Treatment with coumaroyl lupendioic acid (10 and 20 mg/kg, p.o.) and reference drugs (indomethacin and dexamethasone at the dose of 5 mg/kg, p.o.) were started on the day of induction and continued up to 28 days. The effect of coumaroyl lupendioic acid on oxidative indicators (e.g. nitric oxide, myeloperoxidase, malondialdehyde) and antioxidant enzymes (e.g. superoxide dismutase and glutathione peroxidase) was measured at the end of the study. Furthermore, ankle joints and spleen were collected and prepared for histological examination. The present study showed that the oxidative indicators such as nitric oxide, myeloperoxidase, malondialdehyde were downregulated by coumaroyl lupendioic acid. A significant upsurge in the level of superoxide dismutase and glutathione peroxidase was observed. Moreover, histopathological examination showed that the inflammatory cells infiltration, synovial hyperplasia and cartilage erosion had considerably improved on administration of coumaroyl lupendioic acid. In conclusion, our study strongly demonstrated that coumaroyl lupendioic acid has efficient scavenger and protective effect against oxidative stress elevated after CFA injection.

Biography

Dr. Rayhana is a recognized expert in Extraction techniques (Column Chromatography, Flash Chromatography) use of ELISA, Immunohistochemistry, the measurement of pro-inflammatory cytokines, acute phase proteins and oxidative biomarkers for the determination of anti-inflammatory and anti-arthritis activities of drugs and quantitative determination of drugs by spectrophotometer, HPTLC and HPLC. Study of Bioavailability and bioequivalence profile of drugs. After obtaining B.Pharm. Degree and M. Pharm Degree in Clinical Pharmacy and Pharmacology from the University of Dhaka in 2005 and 2006, respectively, she has been awarded the Ph.D Degree in Pharmacology by Hamdard University, NewDelhi, India in 2016.

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