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**In Type II diabetic rats, scopoletin encapsulated optimized solid lipid nanoparticles to protect against STZ-caused renal dysfunctions**

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**Objectives:** The aim of this study was to develop and assess the therapeutic action, in the event of renal dysfunctions against type II diabetic rats by scopoletin-loaded solid lipid nanoparticles (S-SLN).

**Methods:** Streptozotocin (55 mg / kg) for control of diabetes was used in the experimental regimen. Rat has been divided into different classes and treated for six weeks with SLNs loaded with scopoletin (25mg/kg). Weight of the tissue, biochemical parameters such as cytokines pro-inflammatory. The Nuclear Transcriptions Factor-kappa B (NF-kB) and NADPH oxidase 4 is indicators of TNF- $\alpha$ , IL-1 $\beta$  and IL-6 inflammatory mediator PGE2.

**Results:** Dose-dependent decrease in blood glucose level (44%) was observed in Scopoletin loaded SLNs along with increase in body weight (11%) and plasma insulin level in 41%. In addition to this, treatments were shown at TNF- $\alpha$ -levels (53%), IL1 $\beta$ -level (42%), IL-6-level (35%), PGE2-level (47%), NF-kB-level (31%), and NADPH-oxidase-inhibited 4 levels. The histopathology suggested reduced blood vessels and inflammatory vessels.

**Conclusions:** Overall, the study interpreted the fact that scopoletin-loaded SLNs effectively inhibited the growth of nephropathy by targeting inflammatory pathways in STZ induced type-II diabetic rats.