# CURCUMIN–CAPSAICIN NANOPARTICLES DO NOT ALTER DCF LEVELS IN EXTRAINTESTINAL TISSUES AFTER INDUCTION OF ULCERATIVE COLITIS.

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**INTRODUCTION:** Ulcerative colitis (UC) is a chronic inflammatory colon disease influenced by genetic, dietary, infectious, and microbiota-related factors. Sodium dextran sulfate (SDS) is widely used to induce UC in animal models. While current treatments are effective, they may lead to resistance and side effects. Curcumin has anti-inflammatory potential but limited bioavailability. **OBJECTIVE:** This study evaluates solid lipid nanoparticles containing curcumin and capsaicin for their ability to reduce oxidative stress in liver, kidney, and spleen tissues using the DCF assay. **METHODS:** Solid lipid nanoparticles (NCC) with curcumin and capsaicin were produced by high-shear mixing of lipid and aqueous phases, then homogenized and cooled. Ulcerative colitis (UC) was induced in male C57/BL6 mice, divided into four groups: control (C), SDS (D), sulfasalazine (DS), and NCC (DN). Mice received 5% SDS in drinking water, except the control. Tissues were diluted, homogenized, and centrifuged; the supernatant was used. Oxidative stress was evaluated via fluorescence, and protein levels were measured by spectrophotometry. Statistical analysis was performed using ANOVA and Tukey's test ($p < 0.05$) with SPSS software, following CEUA-UFN ethical guidelines (nº003/2018). **RESULTS:** No significant differences in DCF levels were found in liver and spleen tissues, indicating that NCC did not increase ROS in these organs. In the kidney, groups C and DN showed similar ROS levels, while group DS had reduced DCF levels compared to the control, suggesting a potential antioxidant effect. **CONCLUSION:** The results demonstrated that nanoparticles containing curcumin and capsaicin did not increase reactive oxygen species (ROS) levels in mice's liver, kidney, or spleen tissues of mice with SDS-induced ulcerative colitis. The reduction in DCF levels observed in the kidneys of the sulfasalazine-treated group suggests a potential antioxidant effect of this standard therapy. The absence of significant changes in other organs reinforces the specificity of the colitis model for the gastrointestinal tract. These findings indicate that the nanoparticle formulation of curcumin and capsaicin may be a safe and promising alternative for managing oxidative stress associated with ulcerative colitis.

**KEYWORDS:** Ulcerative colitis; Oxidative stress; Curcumin.; Capsaicin; Nanoparticles.