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Spirulina platensis aqueous extracts ameliorate colonic mucosal damage and modulate gut microbiota disorder in mice with ulcerative colitis by inhibiting inflammation and oxidative stress

Key words: ***Spirulina platensis*** **aqueous extracts, Ulcerative colitis, Oxidative stress, Inflammation, Antioxidants, Gut microbiota**

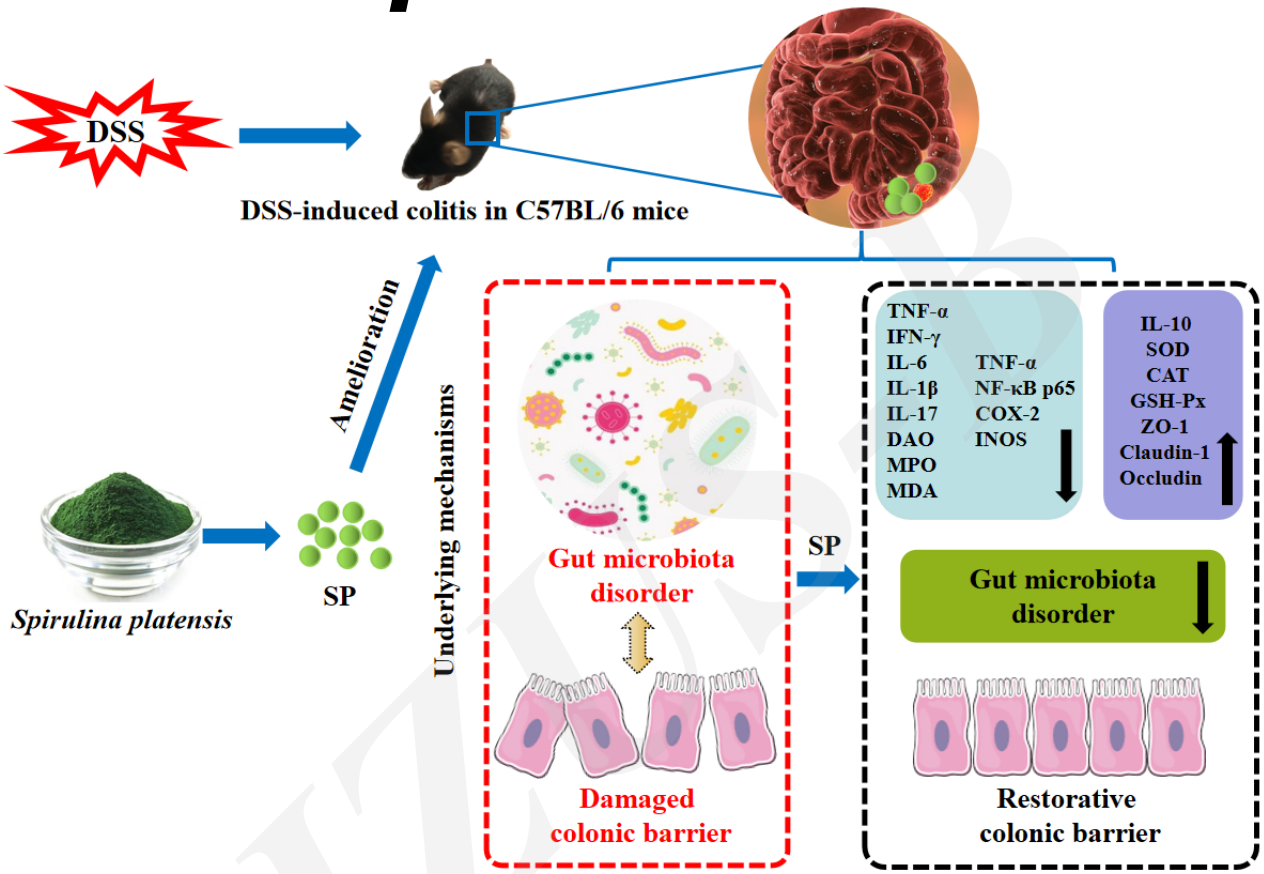
Research Summary

This research mainly focused on the mechanism of *S. platensis* aqueous extracts (SP) ameliorates colonic mucosal damage and modulates gut microbiota disorders in mice with UC. The research consists of the following parts：

- SP alleviated DSS-induced NCM460 cell injury.
- SP reduced the excessive generation of intracellular reactive oxygen species and prevented mitochondrial membrane potential reduction after DSS challenge.
- SP administration could alleviate the severity of DSS-induced colonic mucosal damage.
- SP inhibited the inflammation and oxidative stress by increasing the activities of antioxidant enzymes and the expression of tight junction proteins.
- Amelioration of intestinal flora imbalance by SP was related to enhancement of antioxidant enzyme activity and tight junction proteins in colon tissues.

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Innovation points



- The chemical composition of SP was identified.
- The protective effect of SP against UC is mediated through a reduction in inflammatory cytokine overproduction, oxidative stress inhibition, and enhanced expression of TJ proteins in the colonic mucosa barrier.
- SP could serve as an attractive natural antioxidant for therapy of UC.