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# From animal experiments to mechanism analysis: the therapeutic effect and molecular basis of Portulaca oleracea L in ulcerative colitis: a systematic review and meta-analysis

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## ADMINISTRATIVE INFORMATION

**Support -** No.

**Review Stage at time of this submission -** Preliminary searches.

**Conflicts of interest -** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

**INPLASY registration number:** INPLASY202540053

**Amendments -** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 16 April 2025 and was last updated on 16 April 2025.

## INTRODUCTION

**Review question / Objective** Meta analysis was conducted using a random effects model to evaluate the effects of POL on body weight, colon length, disease activity index , inflammatory factors , oxidative stress indicators, and intestinal barrier protein.

**Condition being studied** Ulcerative colitis (UC) is a recurrent intestinal disease caused by a complex of factors, and there are serious adverse effects and tolerance problems associated with the current long-term use of therapeutic drugs. The development of natural food sources and multi-targeted drugs for the treatment of UC is imminent. Portulaca oleracea L. (PO), as a vegetable, has been shown in studies to have an anti-UC effects. However, the relationship between the abundant active ingredients contained in Portulaca oleracea L. and the improvement of intestinal barrier, gut microbiota and metabolites is unclear. In the present study.

## METHODS

**Search strategy** We use the search method of combining subject words with free words,including the following terms:"Colitis"or ''Colitis Gravis"or" Idiopathic Proctocolitis'' or''Ulcerative Colitis",''purslane"or ''Portulacas" or ''Portulaca oleracea" or ''oleraceas, Portulaca".

**Participant or population** Animal experiments.

**Intervention** Portulaca oleracea treatment.

**Comparator** Portulaca oleracea treatment.

**Study designs to be included** This study systematically searched 5 databases , covering all animal experiments.

**Eligibility criteria** The inclusion standard is carried out according to the PICO principle.(a)Study object: animal experiments.(b)Intervention:purslane and its extracts(c).Control measures: treatment of

saline in the model group, and treatment of purslane or its extracts in the positive control group;(d)Outcomes:Body weight,Disease activity index ,Colon length,Superoxide dismutase, NO,IL-1β,IL-6,IL-10, Myeloperoxidase ,Tumour necrosis factor(TNF-α),ZO-1, Catalase, Glutathione peroxidase, malondialdehyde(e) Study type: Preclinical research.

**Information sources** We searched five databases(China National Knowledge Infrastructure,Wangfang datebase and Cochrane library,PubMed ,Web of Science)for studies published from inception up to 20 February 2025.

**Main outcome(s)** Body weight,Superoxide dismutase,Myeloperoxidase ,Tumour necrosis factor(TNF-α),Catalase,Glutathione peroxidase, malondialdehyde et al.

**Quality assessment / Risk of bias analysis** We use software of the SYRCLE ROB to evaluate the quality of literature.

**Strategy of data synthesis** We use RevMan5.3 software for data analysis.Because the outcome indicator is a continuity variable,so effect sizes is expressed by standardized mean differences (SMD) and 95% .confidence intervals (95%CI).

**Subgroup analysis** Conduct subgroup analysis when necessary.

**Sensitivity analysis** No sensitivity analysis.

**Language restriction** No language restriction.

**Country(ies) involved** China.

**Keywords** ulcerative colitis; Portulaca oleracea L; Meta analysis; Inflammatory factors; Oxidative stress.

**Contributions of each author**

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