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Anti-inflammatory activity of *Jasminum grandiflorum* L. subsp. *floribundum* (Oleaceae) in inflammatory bowel disease and arthritis models

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Highlights

- *J. grandiflorum* L. total extract (JTME) is highly recommended for the management of chronic inflammatory disorders.
- It was successfully reduced the expression of pro-inflammatory cytokines and inflammatory mediators.
- Additionally, it had a potent antioxidant potential.
- JTME and its fractions showed inhibitory activity on cyclooxygenases and lipoxygenases as detected *in vitro*.
- Secoiridoids could be the class of compounds responsible for this potent activity.

Abstract

Our study has renewed interest in the genus *Jasmine* for the treatment of chronic inflammatory conditions. Aerial parts of *Jasminum grandiflorum* L. subsp. *floribundum*

total methanolic extract (JTME) were tested for its therapeutic potential as an anti-inflammatory agent using two experimental models in rats; acetic acid (AA) induced [ulcerative colitis](#) and [adjuvant induced arthritis](#).

The administration of JTME showed anti-inflammatory activity in a dose dependent manner. JTME, 400 mg/kg was like [prednisolone](#), 2 mg/kg p.o. (the reference drug), since it improved the tissues of the colon clinically, macro and microscopically (ulcer index), and histopathological (scoring). It reduced the intestinal expression of pro-inflammatory cytokines in the [colonic mucosa](#); IFN γ , TNF α , IL-6, IL-1, and MPO. It also preserved tight junctions in intestinal epithelial cells by counter-regulating claudin-5 and [occludin](#) levels additionally, it had a potent [antioxidant activity](#). The expressions of NF- κ B p65, TNF- α and caspase-3 in rats administered AA (2 mL of 4% solution, once, intrarectally) were significantly increased, where the lowest expression was scored in JTME, 400 mg/kg group. In the adjuvant induced model of [rheumatoid arthritis](#), the TJME, 400 mg/kg reduced the levels of [cathepsin D](#), [iNOS](#), [NO](#), RF, CRP, [CPP](#) and elevated the total [antioxidant capacity](#) of tissues. Additionally, it maintained bones without histopathological lesions, [articular cartilage damage](#), and inflammation of the [synovial membrane](#) and periarticular tissues, in contrast to arthritic rats. Finally, we report a new detailed study to validate the medicinal importance of *Jasminum* for the chronic [inflammatory disorders](#) with immune dysfunction with anti-inflammatory and antioxidant effects.

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Keywords

Ulcerative colitis

Rheumatoid arthritis

Jasminum grandiflorum L. subsp. *Floribundum*

Pro-inflammatory cytokines

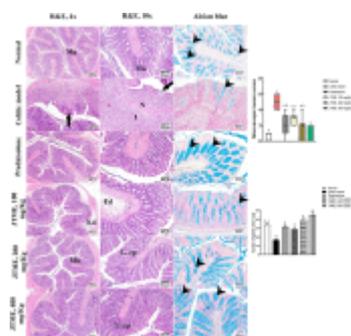
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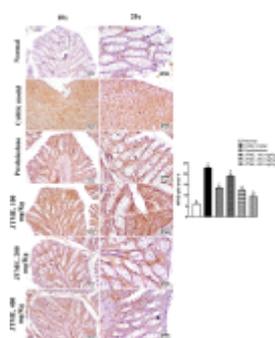
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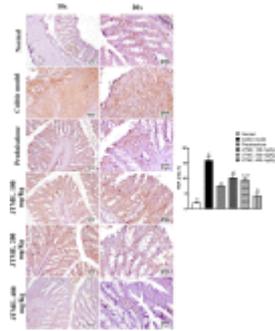
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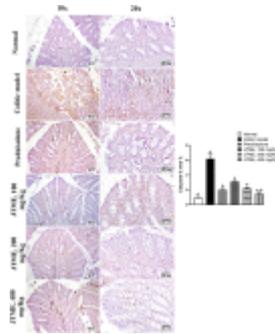
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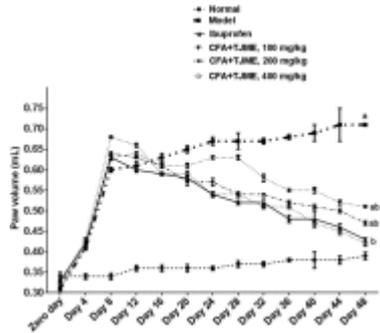
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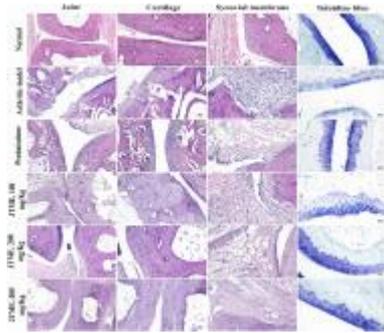
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