

# Alpinia hainanensis has potential to help treat ulcerative colitis

March 31 2022, by Zhang Nannan

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*Alpinia hainanensis*. Credit: Ji Kailong

Ulcerative colitis (UC) is a nonspecific, chronic and recurrent inflammatory bowel disease. *Alpinia* plants (Zingiberaceae family) are the ideal materials for finding therapeutic agents against UC. *Alpinia hainanensis* is an important food spice and ethnic medicine in Southwest China. However, there have been few reports about chemical and anti-inflammatory investigations of *A. hainanensis* rhizomes.

In a study published in the *Journal of Agricultural and Food Chemistry*, researchers from the Xishuangbanna Tropical Botanical Garden (XTBG) and the Shanghai Institute of Materia Medica of the Chinese Academy of Sciences found that the EtOAc-soluble fraction (AHE) of the *A. hainanensis* rhizome ethanol extract could ameliorate dextran sulfate sodium-induced UC.

By [nuclear magnetic resonance](#), chiral high-performance liquid chromatography separation, and electronic circular dichroism calculation, the researchers isolated and structurally characterized 19 compounds (1–14), including five pairs of previously unreported enantiomers (1–5).

The results showed that compounds (-)-1, (-)-3, 6, 9, 11, and 12 exhibited inhibitory effects on the nuclear factor- $\kappa$ B (a widely expressed nuclear transcription factor) signaling pathway, and the two most [active compounds](#) (-)-3 and 6 exhibited significant inhibition of inflammation expression in lipopolysaccharide-induced RAW264.7 cells (mouse macrophage cell line).

The study reports not only the anti-colitis effects of the active fraction from the *A. hainanensis* rhizome ethanol extract but also active

ingredient isolation, structural elucidation, putative biosynthetic pathway analysis, and evaluation of anti-inflammatory effects.

"We suggest that the major active fraction AHE of the *A. hainanensis* rhizome ethanol extract could be developed as a nutritional and [dietary supplement](#) for treating UC," said Ji Kailong of XTBG.



*Alpinia hainanensis*. Credit: Ji Kailong

**More information:** Kai-Long Ji et al, *Alpinia hainanensis* Rhizome Extract Ameliorates Dextran Sulfate Sodium-Induced Ulcerative Colitis:

Active Ingredient Investigation and Evaluation, *Journal of Agricultural and Food Chemistry* (2022). [DOI: 10.1021/acs.jafc.1c08038](https://doi.org/10.1021/acs.jafc.1c08038)

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