

## News &amp; Comments

## The Anti-Arthritis Effect of *Cinnamaldehyde*

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The systemic autoimmune illness rheumatoid arthritis (RA), also known as "immortal cancer," is characterized by progressive cartilage degradation, chronic proliferative synovitis, and joint swelling. Due to its widespread prevalence and challenging treatment options, RA places a significant financial and psychological strain on sufferers as well as on society. The "Shen Nong's Herbal Classic" contains the dried cinnamon *Cinnamomum cassia* twig, which is used in traditional Chinese medicine. It provides a warming and meridian effect and dispels cold. Cinnamaldehyde has been the subject of numerous pharmacological research, which has revealed a variety of its pharmacological properties, including anti-inflammatory, antipyretic and analgesic, anti-tumour, antibacterial, hypoglycaemic, and anti-obesity properties.

Cinnamaldehyde has a notable anti-inflammatory impact, according to numerous in vitro studies. The therapy of many disorders also makes use of cinnamaldehyde's anti-inflammatory properties. Cinnamaldehyde can dramatically lower serum levels of Alanine Transaminase (ALT), Aspartate Transaminase (AST), Interleukin-6 (IL-6) and TNF- $\alpha$  in the LPS/D galactosamine-induced acute hepatitis model. Therefore, this work sought to confirm the anti-arthritis activity in vivo and clarify the underlying mechanism of cinnamaldehyde in adjuvant-induced arthritis in rats as part of evaluating the anti-inflammatory benefits of natural substances.

The study was carried out at China's Anhui University of Traditional Chinese Medicine's School of Laboratory Pharmacy. The Chinese experimental animal Anhui University of Chinese medicine sold us a total of 40 SD rats (18020 g each). The laboratory of the College of Pharmacy at the Anhui University of Chinese Medicine provides the testing environment. Eight rats were housed in each cage where the rodents were kept. Complete Freund's Adjuvant (CFA), ELISA test kits, cassia twig extract, cinnamaldehyde monomer, and Zheng qing Feng tong ning pills were the principal medications and materials employed in this work. By injecting 0.1 mL of CFA intradermally into the right hind paw, the rats were immunized. The visual arthritis index was employed, as previously mentioned, to evaluate the severity of arthritis. All values were expressed as Means $\pm$ SD.

The rats received continuous treatment for a week starting on the 17th day of induction. Rats' paw edema did not significantly decrease in the saline group. Cinnamaldehyde and Cassia twig extract groups both showed a reduction in paw swelling. It suggests that the paw edema in rats with CFA-induced arthritis can be reduced by Zheng qing Feng tong ning, Cassia twig extract, and cinnamaldehyde monomer. Examined was the relationship between weight loss and the severity of joint inflammation. Rats' immune systems, including the spleen and thymus, can swell or hyperplasia



because of CFA-induced arthritis. The impact of cinnamaldehyde on rat knee joints was examined using histochemical staining of H and E. The findings demonstrated that cinnamaldehyde and Cassia twig extract greatly reduced synovial hyperplasia, slowed the breakdown of bone and cartilage, and reduced inflammatory cell infiltration in the joint and peri-synovial inflammation. A worldwide treatment for RA medications has not yet been found, even though RA is an autoimmune illness with unknown pathophysiology. RA is a systemic autoimmune disease that is clinically widespread. An immunological illness that causes synovitis and invasive neovascularization, which frequently results in the loss of cartilage and bone, is the pathophysiology that causes severe joint abnormalities and, in some cases, incapacity. According to studies, IL-1, IL-6, and TNF- "may suppress osteoclast production while IL-10 can stimulate osteoclast development. TNF- "also causes inflammation by encouraging type 2 cyclooxygenase to produce PGE2.

This study shows that the Chinese herbal remedy Cassia twig's cinnamaldehyde has anti-arthritic effects in CFA-induced rat arthritis.

#### **JOURNAL REFERENCE**

Dong, B., W. Wu, J. Chen and X.Q. Chu, 2022. The anti-arthritis effect of cinnamaldehyde on adjuvant arthritis rats. *Int. J. Pharmacol.*, 18: 551-561.

#### **KEYWORDS**

*Cinnamomum cassia*, Cinnamaldehyde, adjuvant-induced arthritis, anti-inflammation, anti-arthritis, cartilage, cell infiltration

