

# Curcumin



## What is Curcumin?

Turmeric is derived from the root of the *Curcuma longa* plant, a member of the ginger family with a distinctive yellow color.

For centuries, it has been traditionally used in Ayurveda medicine for a variety of diseases and conditions but has been the subject of extensive research in recent years.

Curcumin (diferuloylmethane) is the most biologically active constituent and powerful polyphenol of turmeric with anti-proliferative/anti-tumour, antioxidant, anti-inflammatory, and anti-microbial properties. As a result, curcumin has therapeutic potential against such conditions as:

- Diabetes
- Allergies
- Arthritis
- Aches and sprains
- Liver disorders
- Alzheimer's disease
- Gastrointestinal disorders
- Cancer
- Other chronic diseases of inflammation

## Administration of Curcumin

Curcumin may be administered topically, orally or intravenously. However, curcumin has relatively low bioavailability when consumed in its raw form. Intravenous curcumin allows for rapid and effective absorption and activity.

When taken orally, liposomal encapsulated curcumin also provides enhanced delivery and bioavailability. The safety and tolerability of curcumin at high doses has been well established in human clinical trials.

## Notes

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## Benefits of Curcumin

The activity of curcumin has been indicated in the prevention and treatment of a variety of cancer types including lymphoma, leukemia, melanoma, sarcomas, neurological, gastrointestinal, genitourinary, breast, ovarian, lung, and skin cancers.

The anti-cancer mechanisms of curcumin are in part due to its ability to regulate gene expression and modulate multiple cell signaling pathways, particularly its inhibition of the NF- $\kappa$ B pathways which plays a role in the development and progression of cancer. It is able to target such pathways without any associated toxicity.

Additionally, curcumin promotes the development of healthy cells while preventing tumour growth, metastasis, and angiogenesis (the formation of new blood vessels that supply tumours) by binding to a variety of biomolecules within the body.

Curcumin further demonstrates specificity in the induction of apoptosis (programmed cell death) in cancer cells, providing beneficial anti-proliferative effects.

Moreover, curcumin modulates inflammation by down-regulating certain enzymes and inhibiting the production of inflammatory cytokines, TNF, and interleukins.

Other notable effects include the protection and promotion of liver function, as well as cardiovascular benefits such as lowering cholesterol and LDL levels, inhibiting platelet aggregation.

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