

Capsaicin

Capsaicin is the bioactive compound primarily responsible for the spicy heat of chili peppers belonging to the genus *Capsicum*. It has been used for centuries in traditional medicine and culinary practices worldwide. Today, capsaicin is widely recognized for its applications in pain-relief products, metabolism research, and functional foods.

Key facts

- **Scientific source:** *Capsicum* species
- **Common names:** Capsaicin, Chili Pepper Extract
- **Family:** Solanaceae
- **Active compounds:** Capsaicin, dihydrocapsaicin
- **Typical forms:** Creams, patches, capsules, extracts

Botanical characteristics

Capsaicin is naturally produced in the fruits of chili pepper plants. The concentration varies depending on the pepper species and cultivar. The compound is especially concentrated in the internal membranes and seeds surrounding the fruit.

Traditional and modern uses

Traditionally, chili peppers containing capsaicin have been used to stimulate circulation, warm the body, and support digestion. In modern medicine and wellness products, capsaicin is frequently utilized in topical pain-relief creams, patches, and supplements related to musculoskeletal comfort and metabolism support.

Mechanism and research

Research suggests that capsaicin interacts with transient receptor potential vanilloid 1 (TRPV1) receptors involved in pain and heat sensation. Repeated topical exposure may reduce pain signaling by desensitizing sensory neurons. Clinical studies have investigated capsaicin for neuropathic pain, arthritis-related discomfort, and metabolic effects.

Safety and regulation

Capsaicin products may cause burning sensations, skin irritation, or gastrointestinal discomfort in sensitive individuals. Topical preparations should be used carefully to avoid contact with eyes and mucous membranes. Standardized pharmaceutical and over-the-counter formulations are available in many countries.

Culinary and supplement context

Capsaicin-rich peppers are widely consumed in cuisines worldwide and are increasingly incorporated into supplements, sports products, and functional wellness formulations due to their distinctive pungency and bioactive profile.