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Short Commentary

Precise Role of Phytomedicines in Wound Healing and Joint Disorders

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DESCRIPTION

Chronic joint inflammatory disorders like osteoarthritis and rheumatoid arthritis share an increase in inflammation and oxidative stress, resulting in progressive histological changes and disabling symptoms. Conventional medication (from pain relievers to biological agents) is effective, but it is frequently associated with serious, even life-threatening side effects. Medicinal plants, which have been used for millennia in traditional herbalism, are a promising alternative, with a lower rate of adverse events and efficacy that is frequently comparable to that of conventional drugs. Nonetheless, their mode of action is frequently elusive and/or uncertain. Despite the fact that many of them have been shown to be effective in *in vitro* or animal model studies, there is a lack of human clinical evidence.

Chronic inflammatory joint diseases, such as osteoarthritis and rheumatoid arthritis, share an increase in inflammation and oxidative stress, resulting in progressive histological changes and disabling symptoms. Osteoarthritis, which affects approximately 15% of the population, is characterized by irreversible destruction of articular cartilage and bone erosion caused by pro-inflammatory cytokines such as interleukin 1 (IL-1), interleukin 6 (IL-6), and Tumour Necrosis Factor (TNF). These mediators increased collagenase or matrix metaloproteinase (MMP) synthesis and collagen type II degradation while decreasing collagenase inhibitor, collagen, and proteoglycan synthesis. One of the biochemical hallmarks of osteoarthritis is the degradation of collagen type II by collagenase-1 and collagenase-3 (also known as MMP-13). *Arnica montana*, Asteraceae plant, has been used for centuries in traditional herbalism as a remedy for trauma, strain, and/or inflammation-related locomotor system conditions, and is one of the most commonly used natural remedies for rheumatologic conditions. An oral Arnica extract was shown to alleviate both histological and radiological changes in the affected joints (in the collagen induced arthritis rat model), as well as a decrease in NO, TNF-, IL-1, IL-6, and IL-12 concentrations, anti-type II collagen antibodies, and an improvement in the oxidative status (higher antioxidant levels and milder peroxidative injury).

An open multicenter trial found that a gel prepared from *Arnica montana* fresh plant alleviated symptoms, improved functionality, and was well tolerated in knee OA patients. Only a few negative events were reported. As is appropriate for an Asteraceae herb, allergy may be an issue. A double-blind study on 204 patients comparing *Arnica montana* to ibuprofen in topical applications for hand OA found no difference in efficacy or side effects (with Arnica being less common), a finding that was corroborated by another study.

A Cochrane review also acknowledged the efficacy of Arnica in the local treatment of hand OA. Some authors attribute the anti-arthritic efficacy to a synergism of phenolic and flavonoid compounds, the dominant active standards, identified in a methanolic extracts that was found effective in a Collagen-Induced Arthritis (CIA) rat model. Biologic therapies have been shown to be highly efficient and successful in the vast majority of RA cases, along with the most severe ones.

A physiological process aimed at repairing damaged tissues restores skin integrity. Hemostasis, inflammation, proliferation, and remodelling are the four stages of healing. Phytomedicine offers remedies with significant pharmacological effects. It is well-liked by the general public in many parts of the world. Phytotherapeutic agents have primarily been used to treat cutaneous wounds. Aloe vera, mimosa, grape vine, Echinacea, chamomile, ginseng, green tea, jojoba, tea tree oil, rosemary, lemon, soybean, comfrey, papaya, oat, garlic, ginkgo, olive oil, and ocimum are among them. Phytotherapy may provide new therapeutic options for cutaneous wounds.

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