

Chapter 5

Medicinal Plants for Gout Treatment

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ABSTRACT

Gout is a complex form of arthritis characterized by sudden, severe attacks of pain, swelling, redness, and tenderness in the joints. Gout is a type of inflammatory arthritis that is triggered by the crystallization of uric acid within the joints and is often associated with hyperuricemia. Natural products offer many options to reduce the progress and symptoms of diseases, including gout. Natural compound structures including lignans, flavonoids, tannins, polyphenols, triterpenes, sterols, and alkaloids have anti-inflammatory, antioxidant, and XO activities. In this chapter, the author presents medicinal plants and isolated compounds that are used to prevent and reduce signals of the pathogenesis of gout disease.

INTRODUCTION

Gout is a type of inflammatory arthritis that is triggered by the crystallization of uric acid within the joints and is often associated with hyperuricemia. Gout has characteristics by the deposition of monosodium urate crystals in the joints or soft tissue. The four phases of gout include asymptomatic hyperuricemia, acute gouty arthritis, intercritical gout and chronic tophaceous gout. Acute gout has characterized by the sudden onset of pain, erythema, and limited range of motion and swelling of the involved joint (Choi et al., 2005). Following recovery from acute gouty arthritis,

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the patient reenters an asymptomatic phase of the disease. This phase is referred to as “intercritical gout”. Gouty arthritis may mimic rheumatoid arthritis, with symmetric small-joint involvement and tophaceous deposits on extensor tendon surfaces that resemble rheumatoid nodules (Riches et al., 2009). Hyperuricemia is the term for an abnormally high serum urate level, without gouty arthritis or nephrolithiasis. Hyperuricemia is defined as a serum urate concentration greater than 7 mg/mL (416 μ mol/L). Xanthine oxidase (XO) is an enzyme responsible for catalyzing the oxidation of hypoxanthine to xanthine and then to uric acid. Elevated concentrations of uric acid in the blood stream of human body leads to formation of gout, characterized by hyperuricemia and recurrent attacks of arthritis. XO is distributed most abundantly in the liver and intestine, situated at the end of a catabolic sequence of the purine nucleotide metabolism in humans and few other uricotelic species (Ojha et al., 2017).

The goals of therapy in the management of gout are to terminate the acute painful attack, prevent recurrences and prevent or reverse the complications of urate deposition in joints, kidneys or other involved sites and reduce the hyperuricemia (Rees et al., 2014). The four treatment options available for the acute gouty attack are NSAIDs, colchicine, corticosteroids and analgesics. NSAIDs are the preferred therapy for the treatment of patients without complications. Indomethacin ibuprofen, naproxen, sulindac, piroxicam and ketoprofen are also effective in the treatment of acute gout. Colchicine, a compound derived from the roots of the herb *Colchicum autumnale*, is one of the most used for gout's treatments. However, colchicine has gastrointestinal side effects, including nausea, vomiting and diarrhea, at therapeutic dosages. Corticosteroids, administered intra-articularly, intravenously, intramuscularly or orally, have been shown to be effective in the treatment of acute gout, such as triamcinolone hexacetonide, triamcinolone acetonide or methylprednisolone; can be used with minimal side effects (Sarawate, 2006).

Medicinal plant have been showed may decrease the progress and symptoms of various disease, including gout. Many studies were conducted to investigate the effect of total medicinal plant extract on gout and furthermore to isolate and identify the active compound. Many compounds, including saponins, flavonoids, polyphenols, triterpenes, sterols and alkaloids have showed various beneficial pharmacology activities such as antiinflammatory, and antioxidant, anti-xanthine oxidase enzyme (Bansal, 2010). Some compound such as colchicine, resveratrol curcumin, epigallocatechin-3-gallate, quercetin, luteolin have been used in patients with Gout's disease and provided positive results. Below we will summarize some medicinal plants and natural product compounds are used for treatment of gout.

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