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Expert Opinion

Orthosiphon stamineus Benth, a potential herb in treatment of gout: A mini opinion and call for further research

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Abstract

Based on our knowledge, experience and field survey in the treatment of gout by complementary/alternative medicine and especially the herb therapy, properties of curing gout of *Orthosiphon stamineus* Benth are briefly commented and suggest that the future research to insightfully elucidate this science opinion is necessary.

Keywords: *Orthosiphon stamineus*, gout, alternative medicine

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Introduction

Gout is a kind of inflammatory arthritis in which uric acid crystals accumulate in the joints, especially in the knee, ankle, wrist, finger, and elbow¹. Late complication of long-term acute gout may induce poly-articular or oligo-articular gout, which is one of the most throbbing and painful conditions in humans². Furthermore, gout patients have a higher risk of cardiovascular disorders as well^{3,4}. One of the major strategies in the control of uric acid overproduction in the gout treatment and its complication, natural products which are potential candidates with a safe, effective, and potential inhibitory effect on XO activity that stimulates uric acid production, have been considered to investigate their beneficial promotion. In Vietnam, the rate of gout tends to increase in recent years and gout is one of the leading causes of handicapped. Using herb therapy in the treatment of gout has attracted substantial attention because it has beneficial efficacy more than western medicine.

Orthosiphon stamineus Benth., a member of the Orthosiphon genus, belongs to the Lamiaceae family. In Vietnam traditional medicine, its whole parts were used as an effective ingredient for the treatment of eruptive fever, hepatitis, urinary lithiasis, as well as influenza and jaundice⁵. Former studies on chemical constituents have indicated that this herb contains diterpenoids, triterpenoids, flavonoids, and phenolics^{6,7}. Some of the compounds include siphonol B, siphonol D, Orthosiphols B, F, G, I, and N⁸; 7,4'-dimethylkaempferol, 5,7,4'-trimethylkaempferol, 7,3',4'-trimethylquercetin, 5,7,3',4'-tetramethylquercetin, and 5,7,4'-trimethylquercetin, 3,5,3',4'-tetramethylquercetin, 5,7,3',6'-tetramethoxyflavone, 5,7,3',4'-tetramethoxyflavone, 5,7,3',4'-tetramethoxyflavone, 2S-

5,6,7,3',4'-pentamethoxyflavanone, 2S-5'-hydroxy-5,7,3',4'-tetramethoxyflavanone⁹. It is interesting for gout patients. The consumption of *Orthosiphon stamineus* Benth combined with some other herbs is claimed to be highly effective, which was recorded via interview on status of using herbs in the disease treatment at high-density ethnic minorities areas.

Science opinion and discussion

According to the theory of traditional medicine, one of the major herbal prescription strategies for the treatment of gout is the control of uric acid overproduction. Disclosed prescriptions include *Alcasia macrorrhiza* L., *Orthosiphon stamineus* Benth., *Gnetum gnemon* L., *Clinacanthus nutans* L., *Musa balbisiana* Colla, *Glycosmis Citrifolia* (Wild) Lindl, in which *Orthosiphon stamineus* Benth is main herbal with rate of over 30 percent of weight. The used part is aerial parts. Based on our knowledge and experience, *Orthosiphon stamineus* Benth is used in this prescription with function of diuretic, reducing uric acid and late complication inhibitory such as forming gout tophi. Interestingly, after taking solution of herb extract about 30 days, levels of uric acid and symptoms of warmth, redness, and excruciating pain are well controlled. Orthosiphon Z, orthosiphon Y, 14-deoxo-14-O-acetylorthosiphon Y, vomifoliol, caffeic acid, rosmarinic acid, eupatorin, and sinensetin are core compounds serving as the most representative pharmacological active compounds¹⁰. Interestingly, rosmarinic acid and sinensetin, were identified as diuretic agents. Moreover, eupatorin and 3'-hydroxy-5,6,7,4'-tetramethoxyflavone were discovered to prevent the formation of calcium oxalate crystals¹¹. Moreover, mechanism of kidney stone formation involves the presence of various crystalloids, including oxalate, uric acid, calcium, and cystine,

which are found in urine along with dissolved mucin and sulphuric acid colloids ¹². Whether does the mechanism of kidney stone formation and gout tophi have similar characteristics?. In addition, from the idea of using *Orthosiphon stamineus* Benth in treatment of kidney stones in Vietnam traditional medicine, gout patients used it as main part to inhibit forming of gout tophi, which is a scientifically based mindset.

Conclusion

Orthosiphon stamineus Benth has attracted substantial attention because it was thought to have outstanding benefits for treatment of kidney stones and gout complication. Additionally, when it was used together with herbs, strong synergistic effect was stated by gout patients. We hope that more comprehensive pharmacological mechanisms related to effect of gout treatment of *Orthosiphon stamineus* Benth need to be elucidated. Authors call for further research to determine the definitive mechanism and clinical studies should be carried out more to form effective gout therapeutic formula of herbal medicine.

Conflicts of interest

The authors declare no conflicts of interest

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