

Study on the phytochemical constituents of *Thymus kotschyanus* Boiss. Et Hohen and its efficacy on the symptoms' improvement of irritant bowel syndrome

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Background and Aims: In some regions of Iran, *Thymus kotschyanus*, with local names of “KahliOti” or “KahUti”, is well-known as a natural remedy for eliminating cold temperament of yogurt or its common traditional beverage (named in Persian as Dough). It is also used for treatment of disorders such as mucus losing, flatulence, abdominal pain with diarrhea and/or constipation.

Methods: Based on the existing folkloric knowledge on application of this plant for treatment of irritant bowel syndrome, a pre- and post-interventional clinical trial has been performed. The main phytochemical constituents of the plant and chemical analysis of the aerial parts volatile oils were also determined. The clinical survey involved 29 patients suffering from typical signs of IBS. The patients were treated with the infusion made from flowering aerial parts of *T. kotschyanus*, sweetened with crystallized sugar for 4 weeks. The Friedman test and Nonparametric-Wilcoxon signed ranks test were applied.

Results: Phytochemical studies revealed presence of considerable amount of flavonoids and volatile oils in the aerial parts. GC-MS analysis of the volatile oils showed presence of large amounts of monoterpene hydrocarbons, sesquiterpene hydrocarbons and their oxygenated derivatives as 26.38%, 6.57%, 62.99% and 2.17% of the total content of oil, respectively. Consequently, the major IBS symptoms including diarrhea or constipation and also the patients main complains of abdominal pain and flatulence were statistically relieved ($P < 0.001$).

Conclusions: In conclusion, chemical analysis of the plant's volatile oils reveals the considerable constituents comparing with other species and as a more important achievement, the administration of *T. kotschyanus* seems to be effective for abdominal symptoms in patients suffering from irritant bowel syndrome.

Keywords: *Thymus kotschyanus*; Irritant bowel syndrome; GC-MS analysis