

Investigation of the chemical constituents of *Thymus Vulgaris* essential oil and its effects on *Streptococcus mutans*

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Abstract:

Thymus Vulgaris (Lamiaceae) with common name “Thyme” is a well-known plant with different medicinal uses. Dental Caries and Periodontal disease are one of the common bacterial infections in human beings. *Streptococcus mutans* is the most etiologic agent. Finding natural sources with capability to inhibit the growth of *S.mutans* is the focus center of most researches. Investigations on the effects of *T.vulgaris* essential oil on *S.mutans* and identification of the constituents of the oil were the aims of present study.

Materials and Methods:

The plant was collected from the populations growing in Hamadan province and was authenticated in Department of Pharmacognosy, School of pharmacy, Hamadan university of Medical sciences. The aerial parts of the plant were dried in shade and powdered. The essential oil was obtained by Clevenger type apparatus. Oil was subjected for GC/MS. Zone Of Inhibition of the essential oil against *S.mutans* were determined by Agar well diffusion test.

Results:

Forty- one compounds were identified and 4- Terpineol(16.55%) was the main component. ZOI, for thyme essence were 80mm. Thyme essential oil presents considerable anti streptococcus activity.

Discussion:

Considering the constituents of essence, 4- Terpineol is an Oxygenated monoterpene with reported antibacterial effects in previous studies. The results of present study may be attributed to presence of 4- Terpineol and its synergistic effects with another constituents present in the oil.

Conclusion:

T.vulgare essential oil with profound antibacterial activity may be used in oral hygiene products.

Key words:

Thymus vulgaris, oil, Lamiaceae, *Streptococcus mutans*, Oral hygiene