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Title of thesis: **Effect of harvesting dates and composition of thyme (*Thymus vulgaris* L.) on quality of bakeries**

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ABSTRACT

This study was conducted to evaluate the seasonal variation of herb composition, essential oil content of Egyptian thyme (*Thymus vulgaris* L.), physiochemical properties of the essential oil and its components. The antioxidant and antimicrobial activity of thyme essential oil and one of the bakery products containing thyme herb were subjected to evaluation. The obtained results could be summarized as follows:

- Full flowering stage is the best harvesting time of thyme plants in order to obtain better quality and quantity of herb essential oil. Highest quantity of thymol (69.66%) was presented in oils produced during the full flowering period and after it.
- Thyme essential oil extracted at full flowering stage was the most effective at inhibiting the growth of the gram negative bacteria (*Escherichia coli* and *Salmonella typhimurium*) and gram positive bacteria (*Staphylococcus aureus*), followed by thyme essential oil extracted at post-flowering stage.
- Using 250 ppm of thyme essential oil showed the highest increment in antioxidant activity at post-flowering stage as compared with its antioxidant activity at pre-flowering and full-flowering stages.
- Thyme pie treatments at different concentrations of thyme powder at different harvesting stages were accepted since; there are no significant differences between overall acceptability.
- Addition of the essential oil of thyme herb to sunflower oil as natural antioxidants gave preferable antioxidant effect compared with addition of the thyme powder as antioxidants on the fat of thyme pie.
- There were no occurrence for coliform group or *Staphylococcus aureus* count neither for the zero time nor after 3 days of storage in the all samples.

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