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ILLICIUM VERUM ESSENTIAL OIL ANTIMICROBIAL ACTIVITY IN VITRO AND IN SITU

Natália Čmíková¹, Simona Kunová², Miroslava Kačániová¹

¹*Slovak University of Agriculture, Faculty of Horticulture and Landscape Engineering, Institution of Horticulture, Tr. A. Hlinku 2, 94976 Nitra, Slovakia*

²*Slovak University of Agriculture, Faculty of Biotechnology and Food Science, Institution of Food Sciences, Tr. A. Hlinku 2, 94976 Nitra, Slovakia*

Abstract: *Illicium verum* has strong antimicrobial properties, and was once used to treat a variety of illnesses with microbial origins. In our study the antimicrobial activity of *Illicium verum* essential oil (IVEO) against ten microorganisms by disk diffusion method and vapor phase. The results of this study suggest that IVEO is more active against Gram-positive bacteria and star anise essential oil could be used as a natural antimicrobial agent.

• Introduction

It is a well-regarded medicinal plant with numerous therapeutic benefits. Common applications for IVEO include antibacterial and topical treatment for rheumatism. The aim of the study was to determine the antimicrobial activity of IVEO against ten microorganisms *in vitro* and *in situ* on a carrot model.

• Material and method

IVEO was purchased from Hanus s.r.o. Three Gram-positive bacteria, three Gram-negative bacteria, and four yeasts were used. Antimicrobial activity was tested using disk diffusion method. And for vapor phase as a model organism was used carrot.

• Results and discussions

Results generally show that IVEO has potent antibacterial properties against all Gram-positive and Gram-negative bacteria. The best antimicrobial action against *M. luteus* and *S. aureus* among the tested Gram-positive bacteria of 500 $\mu\text{L/L}$ (95.87 ± 4.58 % and 95.64 ± 3.26 %).

• Conclusions

This research demonstrated the well spectrum of inhibitory action. The best antimicrobial effect has *Illicium verum* essential oil against Gram-positive bacteria *in vitro* and *in situ*.

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