

Essential Oils Compounds of Some Macrofungi (*Lactarius deliciosus* and *Pleurotus ostreatus*) Grown in Kastamonu, Turkey

Kamla A.O. Mohammed¹, Mousa S.M. Gaballah^{1,2} and Nejdət GÜLTEPE²
¹ Omar AL-Mukhtar University, Veterinary Faculty, Al Bayda, Libya

² Kastamonu University, Engineering and Architecture Faculty, Genetics and Bioengineering Department, Kastamonu, Turkey

Introduction

Today, countries have concentrated on the medical values of the chemicals in the structures of medical and aromatic plants, which are used in the traditional medicine field and definite physiological effect on the human body. Essential oils include a lot of bioactive compounds, which are on the GRAS list of foods published by US FDA. The most importance of these bioactive compounds in the construction of medicinal and aromatic plants is alkaloids, flavonoids, tannins and phenolic compounds.

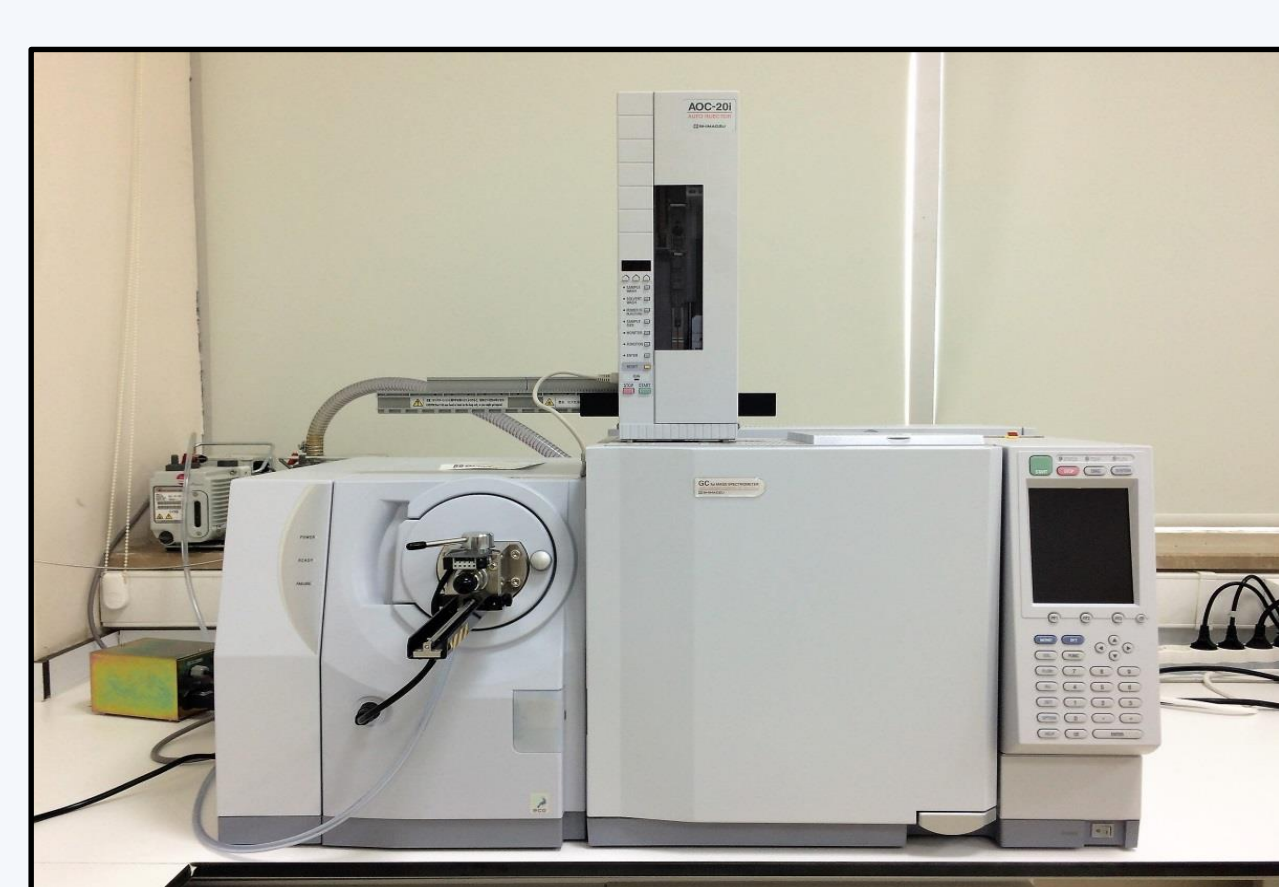
There are 2422 macrofungi species in Turkey. Most of them grow naturally in Kastamonu forests in the Black Sea Region and are sold commercially. Macrofungi are exported as commercial products, as well as being a favorite food item in our country. Therefore, the aim of the study, investigation of the essential oil compounds of *Lactarius deliciosus* and *Pleurotus ostreatus* from Kastamonu, Turkey.

Material and Methods

Lactarius deliciosus and *Pleurotus ostreatus* were purchased from locally commercial company from Kastamonu.



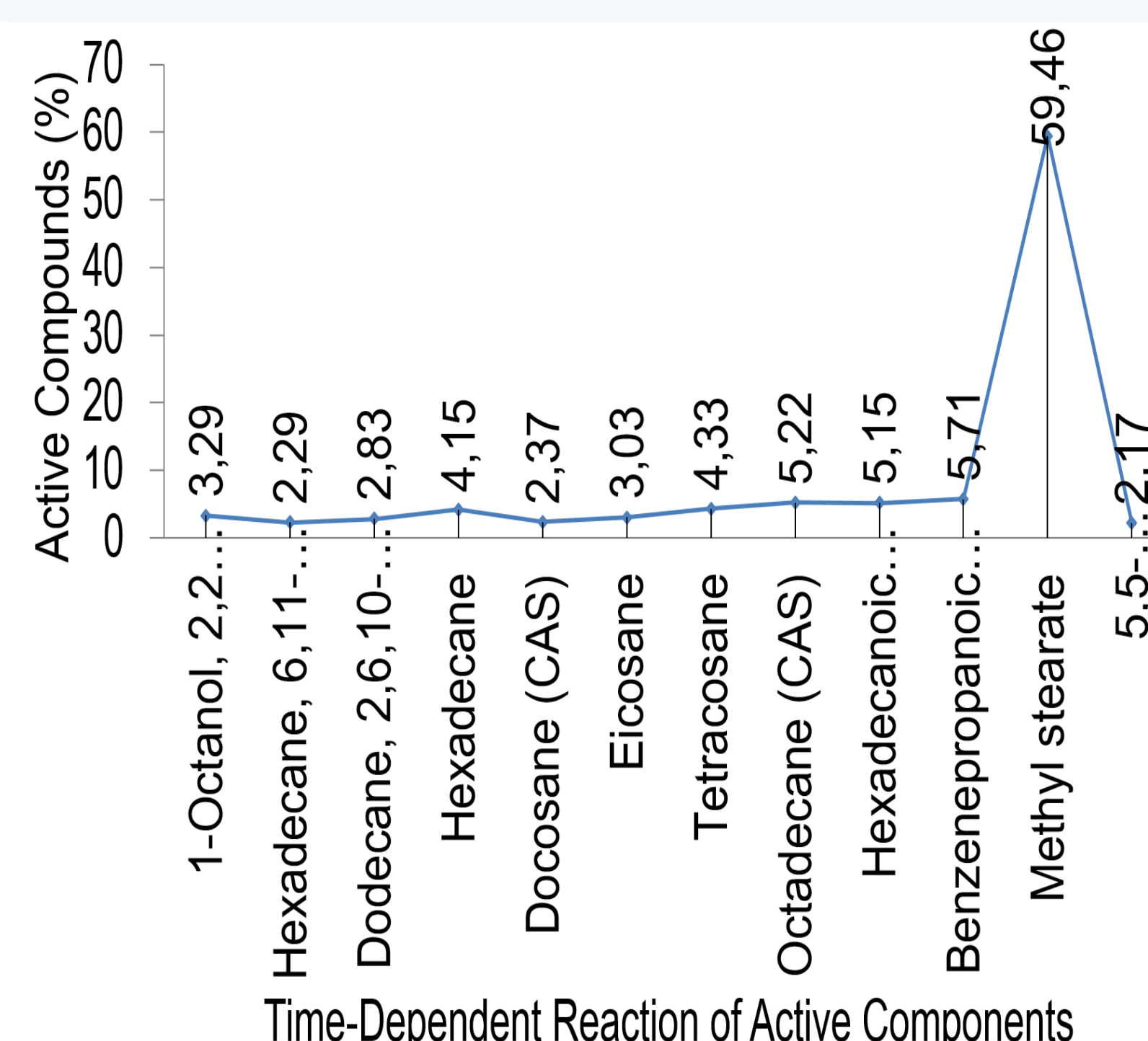
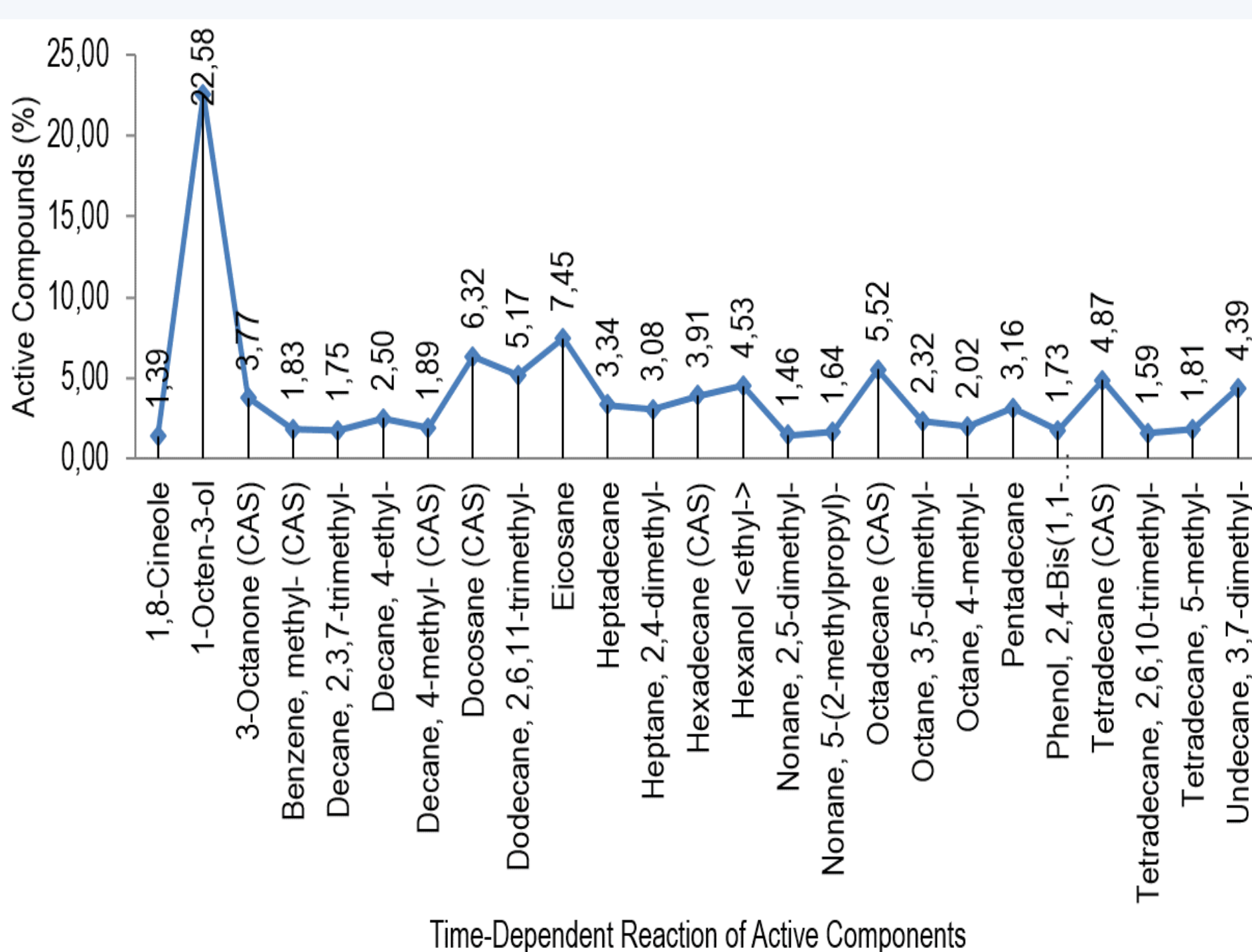
The essential oil was obtained from fresh macrofungi by hydro-distillation, using a Clevenger system with 150 g dry material and 1500 mL water. The oil was obtained after 3 h of distillation at boiling temperature and stored at $4 \pm 1^\circ\text{C}$ in airtight glass vials covered with aluminum foil. The gas chromatography–mass spectrophotometry (GC–MS) analysis of the obtained essential oil was conducted at the Kastamonu University Center Research Laboratory Application and Research Center by using a Shimadzu GCMS QP 2010 ULTRA.



GCMS	Parameters
Columns	30 m; 0.25 mm; 0.25 μm
Gas	Helium
Column °C	90°C
Injection °C	250°C
Pressure	90 kPa
Split Ratio	10
Oven °C	90°C 5 min, 90°C-250°C
Programme	4°C min ⁻¹ , 250°C 5 min

Results and Discussion

Active Compounds	%
1,8-Cineole	1,39
1-Octen-3-ol	22,58
3-Octanone (CAS)	3,77
Benzene, methyl- (CAS)	1,83
Decane, 2,3,7-trimethyl-	1,75
Decane, 4-ethyl-	2,50
Decane, 4-methyl- (CAS)	1,89
Docosane (CAS)	6,32
Dodecane, 2,6,11-trimethyl-	5,17
Eicosane	7,45
Heptadecane	3,34
Heptane, 2,4-dimethyl-	3,08
Hexadecane (CAS)	3,91
Hexanol <ethyl->	4,53
Nonane, 2,5-dimethyl-	1,46
Nonane, 5-(2-methylpropyl)-	1,64
Octadecane (CAS)	5,52
Octane, 3,5-dimethyl-	2,32
Octane, 4-methyl-	2,02
Pentadecane	3,16
Phenol, 2,4-Bis(1,1-Dimethylethyl)-	1,73
Tetradecane (CAS)	4,87
Tetradecane, 2,6,10-trimethyl-	1,59
Tetradecane, 5-methyl-	1,81
Undecane, 3,7-dimethyl-	4,39



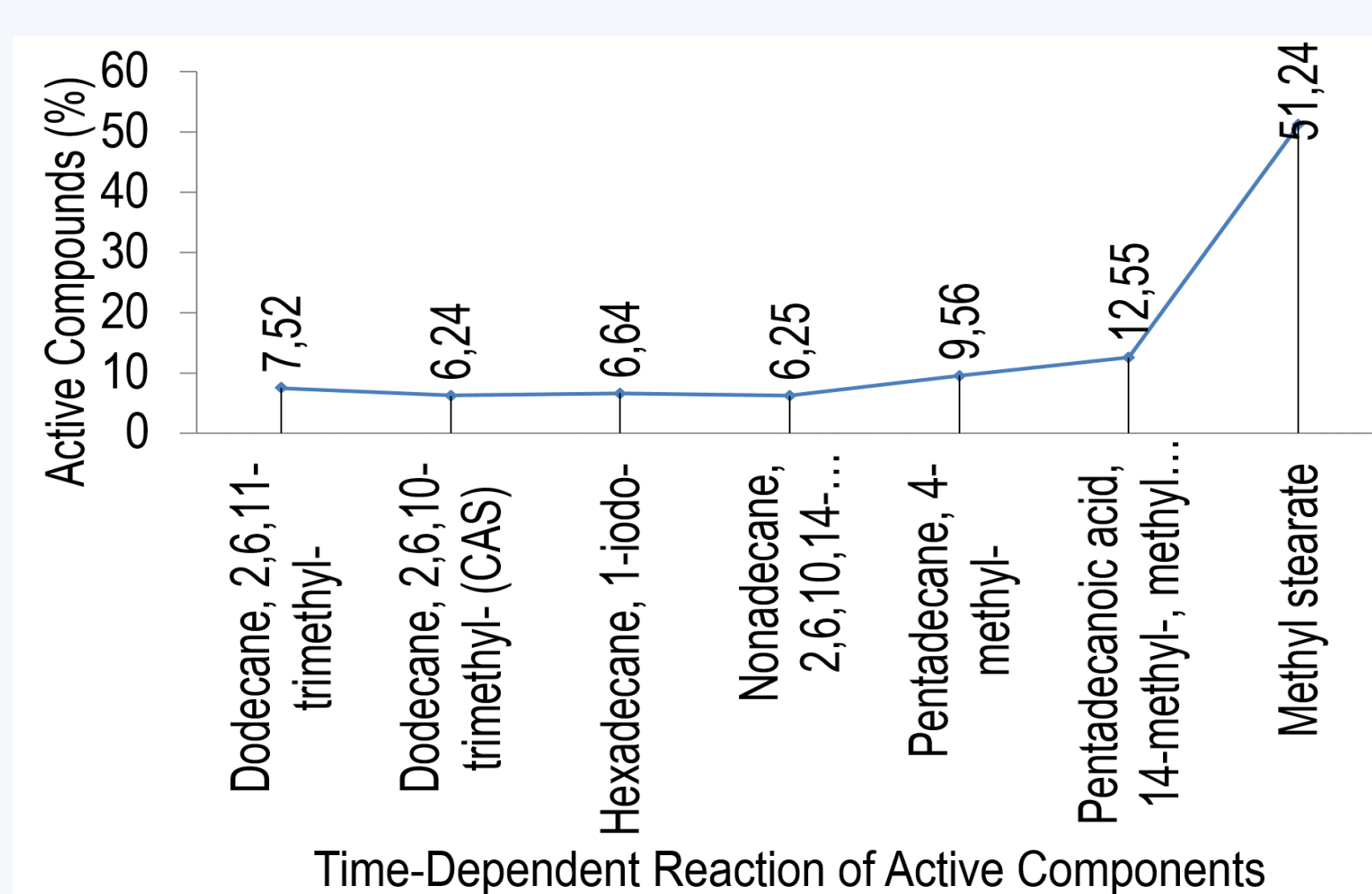
Active Compounds	%
1-Octanol, 2,2-dimethyl-	3,29
Hexadecane, 6,11-dimethyl-	2,29
Dodecane, 2,6,10-trimethyl-	2,83
Hexadecane	4,15
Docosane (CAS)	2,37
Eicosane	3,03
Tetradecane (CAS)	4,33
Octadecane (CAS)	5,22
Hexadecanoic acid, methyl ester	5,15
Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, methyl ester	5,71
Methyl stearate	59,46
5,5-Diethylpentadecane	2,17

1-octen-3-ol (22.58%), eicosane (7.45%) docosane (6.32%), methyl stearate (59.46%), metilox (5.71%) and octadecane (5.22%) were found three compound with the greatest amount for *Lactarius deliciosus* essential oil at the aroma and FAMES analyses, respectively.

Eicosane (13.47%), docosane (10.85%), hexadecane (6.94%), methyl stearate (51.24%), methyl 14-methylpentadecanoate (12.55%) and 4-methylpentadecane (9.56%) were found three compound with the greatest amount for *Pleurotus ostreatus* essential oil at the aroma and FAMES analyses, respectively.

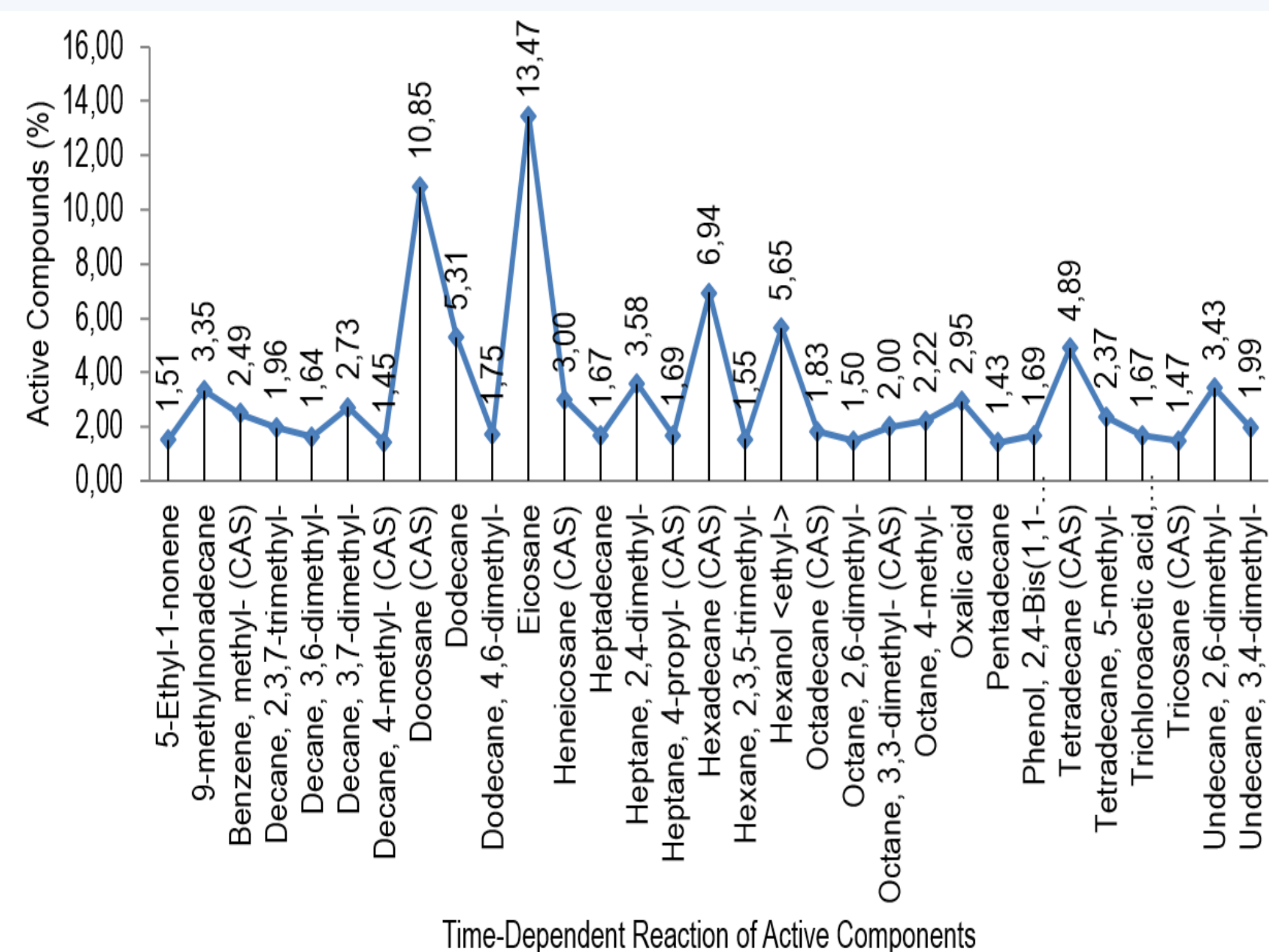
According to the essential oil analyses, *Lactarius deliciosus* included 12 compounds at the FAMES and 25 compounds at the aroma results. Similarly, *Pleurotus ostreatus* included 7 compounds at the FAMES and 31 compounds at the aroma results. Results shows that, essential oils of these macrofungi have unsaturated fatty acids and/or oil compounds.

Active Compounds	%
Dodecane, 2,6,11-trimethyl-	7,52
Dodecane, 2,6,10-trimethyl- (CAS)	6,24
Hexadecane, 1-iodo-	6,64
Nonadecane, 2,6,10,14-tetramethyl-	6,25
Pentadecane, 4-methyl-	9,56
Pentadecanoic acid, 14-methyl-, methyl ester	12,55
Methyl stearate	51,24



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Acknowledgement

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