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GREEN4MED

VOLATILE COMPUNDS OF *VITEX AGNUS CASTUS* L.

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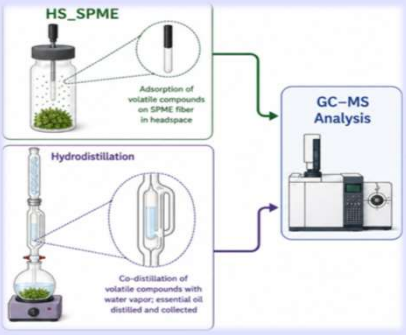
Vitex agnus-castus L., Lamiaceae, is a small tree or shrub widely distributed in the Mediterranean region of Europe and Central Asia. Often used as a remedy for women's health issues and other reproductive ailments, *V. agnus-castus* is universally known as the chaste tree. The plant got its name from the notion that it may help treat infertility and reduce libido.

The aim of this study was to isolate and identify the volatile compounds from various parts (leaf, flower, and fruit) of *V. agnus-castus* collected in Mimice, Dalmatia, in August 2025.

Volatile compounds were isolated by solid phase microextraction coupled with gas chromatography-mass spectrometry (HS-SPME/GC-MS). Two SPME fibers were used: divinylbenzene/carboxen/polydimethylsiloxane (DVB/CAR/PDMS, grey fiber) and carboxen/polydimethylsiloxane (CAR/PDMS, blue fiber). GC-MS analyses were performed using a non-polar, HP-5MS column.



No.	Compound	RI	Proportion (%) Chaste tree fruit		Proportion (%) Chaste tree flower		Proportion (%) Chaste tree leaf	
			Grey fiber	Blue fiber	Grey fiber	Blue fiber	Grey fiber	Blue fiber
1.	*α*-thujene	918	2.54	1.10	1.60	0.47	3.39	1.15
2.	***α*-pinene**	925	**19.42**	**16.76**	**21.37**	**17.72**	**7.56**	**5.33**
3.	**sabinene**	969	**14.03**	**16.23**	**10.51**	**7.51**	**18.39**	**18.45**
4.	*β*-pinene	972	2.23	1.59	1.49	0.71	1.99	1.27
5.	**myrcene**	983	**6.93**	**7.13**	**6.28**	**6.85**	**3.60**	**5.77**
6.	*α*-phellandrene	997	2.21	1.86	2.19	2.24	0.46	0.48
7.	*α*-terpinene	1013	0.96	/	0.73	/	0.56	0.48
8.	*p*-cymene	1015	0,93	0.67	0.92	0.69	/	0.58
9.	**limonene**	1029	**16.15**	**19.34**	**17.37**	**22.62**	**8.80**	**9.59**
10.	**1,8-cineole**	1034	**14.17**	**11.63**	**8.08**	**7.56**	**18.71**	**21.23**
11.	***cis*-*β*-ocimene**	1045	**1.78**	**1.24**	**3.60**	**4.95**	**3.99**	**7.70**
12.	*trans*-*β*-ocimene	1050	/	/	0.11	/	0.34	/
13.	*γ*-terpinene	1061	1.48	0.47	1.05	0.24	1.93	0.72
14.	terpinolene	1089	0.63	0.22	0.39	0.19	0.27	tr
15.	linalool	1099	tr	tr	0.13	tr	/	/
16.	terpinen-4-ol	1178	tr	/	/	/	tr	0.42
17.	*α*-terpineol	1190	0.27	0.35	0.22	0.22	1.61	2.03
18.	bicycloelemene	1336	0.53	0.59	0.66	0.60	1.44	0.39
19.	*α*-terpenyl acetate	1348	2.37	2.73	1.39	1.53	2.73	4.62
20.	citronellyl acetate	1351	0.27	0.20	0.38	0.30	tr	tr
21.	*α*-gurjunene	1405	0.88	0.85	1.00	1.01	1.81	0.73
22.	***trans*-caryophyllene**	1416	**3.93**	**3.87**	**4.73**	**5.20**	**4.35**	**2.79**
23.	*α*-bergamotene	1433	0.30	0.36	0.25	/	/	/
24.	aromadendrene	1437	0.80	1.03	1.11	1.26	1.88	1.06
25.	(-)-seline-5,11-diene	1441	/	0.32	0.26	0.32	0.40	/
26.	*α*-humulene	1455	/	/	0.16	tr	tr	/
27.	***trans*-*β*-farnesene**	1456	**4.02**	**6.36**	**6.60**	**8.66**	**7.38**	**10.26**
28.	alloaromadendrene	1458	0.77	1.12	1.02	1.62	2.18	/
29.	**bicyclogermacrene**	1493	**1.85**	**2.58**	**2.25**	**2.96**	**4.50**	**2.13**
30.	*β*-bisabolene	1504	0.20	0.34	0.23	0.28	/	0.31
	TOTAL		**99.65**	**98.94**	**96.08**	**95.71**	**98.27**	**97.49**

Symbols in tables:
RI = retention indices on HP-5MS column;
/ = not detected; tr = traces (< 0,1 %);

A higher number of compounds was identified in headspace volatiles using DVB/CAR/PDMS fiber than in headspace volatiles using CAR/PDMS fiber. All samples, regardless of the fiber used, were qualitatively similar. However, there were differences in the content of the main compounds identified in different plant parts.

Regardless of differences in the content of individual compounds, mono- and sesquiterpenes were the most abundant compounds in all samples.

- Among the monoterpene compounds, the most abundant were the hydrocarbons ***α*-pinene**, **sabinene**, **myrcene**, **limonene** and ***cis*-*β*-ocimene**, and the ether **1,8-cineole**.
- Among the sesquiterpenes the most abundant were ***trans*-*β*-farnesene**, ***trans*-caryophyllene** and **bicyclogermacrene**.

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