



Biological effects of some *Colchicum autumnale* L. extracts on tissue development of two varieties of *Ocimum basilicum* L.

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Citation:
MOROȘAN I.-C., IVĂNESCU L.C., MIHĂȘAN M.,
OLARU Ș.M., ZAMFIRACHE M.-M., 2022 -
Biological effects of some Colchicum autumnale L.
extracts on tissue development of two varieties of
Ocimum basilicum L. - Adv. Hort. Sci., 36(4): 283-
292.

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source are credited.

Data Availability Statement:
All relevant data are within the paper and its
Supporting Information files.

Competing Interests:
The authors declare no competing interests.

Received for publication 5 April 2022
Accepted for publication 17 October 2022

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Key words: Colchicine, basil, bulbs, flowers, meadow saffron.

Abstract: *Colchicum autumnale* L. is a perennial herb from the Colchicaceae family with an unusual life cycle, and it is characterized by an underground corm and hypogynous flowers that appear in autumn. Its medicinal importance is represented by its primary alkaloid, colchicine, which has been studied for its anti-inflammatory and antimitotic properties and used in the treatment of some diseases and artificial polyploidy induction in plants. This study aims to determine and evaluate the biological effects induced by treatment with *C. autumnale* extracts on tissue development in test plants, represented by two *Ocimum basilicum* L. varieties: 'Italiano Classico' and 'Aromat de Buzău'. Morpho-anatomical observations and measurements and photosynthetic pigments analyses were employed. Results show unusual shapes of leaves, differences in stomata size and density, and heteromorphic cells in leaves and epicotyl's structure in both studied varieties of basil treated with *C. autumnale* extracts.

Table S1 - Tukey's multiple comparisons test results for *O. basilicum* seed germination (FGP)

Tukey's multiple comparisons test	Mean Diff.	95.00% CI of diff.	Below threshold?	Summary	Adjusted P Value
C ₀ (H ₂ O): 'Genovese' vs. C ₀ (H ₂ O): 'Aromat de Buzău'	11.11	7.051 to 15.17	Yes	****	<0.0001
C ₀ (H ₂ O): 'Genovese' vs. C ₁ (MeOH 35%): 'Genovese'	10	5.941 to 14.06	Yes	****	<0.0001
C ₀ (H ₂ O): 'Genovese' vs. C ₁ (MeOH 35%): 'Aromat de Buzău'	56.67	52.61 to 60.73	Yes	****	<0.0001
C ₀ (H ₂ O): 'Genovese' vs. 1:1 BEt: 'Genovese'	80	75.94 to 84.06	Yes	****	<0.0001
C ₀ (H ₂ O): 'Genovese' vs. 1:1 BEt: 'Aromat de Buzău'	80	75.94 to 84.06	Yes	****	<0.0001
C ₀ (H ₂ O): 'Genovese' vs. 1:1 FEt: 'Genovese'	40	35.94 to 44.06	Yes	****	<0.0001
C ₀ (H ₂ O): 'Genovese' vs. 1:1 FEt: 'Aromat de Buzău'	46.67	42.61 to 50.73	Yes	****	<0.0001
C ₀ (H ₂ O): 'Genovese' vs. C ₂ (MeOH 70%): 'Genovese'	80	75.94 to 84.06	Yes	****	<0.0001
C ₀ (H ₂ O): 'Genovese' vs. C ₂ (MeOH 70%): 'Aromat de Buzău'	80	75.94 to 84.06	Yes	****	<0.0001
C ₀ (H ₂ O): 'Genovese' vs. BEt: 'Genovese'	80	75.94 to 84.06	Yes	****	<0.0001
C ₀ (H ₂ O): 'Genovese' vs. BEt: 'Aromat de Buzău'	80	75.94 to 84.06	Yes	****	<0.0001
C ₀ (H ₂ O): 'Genovese' vs. FEt: 'Genovese'	80	75.94 to 84.06	Yes	****	<0.0001
C ₀ (H ₂ O): 'Genovese' vs. FEt: 'Aromat de Buzău'	80	75.94 to 84.06	Yes	****	<0.0001
C ₀ (H ₂ O): 'Aromat de Buzău' vs. C ₁ (MeOH 35%): 'Genovese'	-1.11	-5.169 to 2.949	No	NS	0.9997
C ₀ (H ₂ O): 'Aromat de Buzău' vs. C ₁ (MeOH 35%): 'Aromat de Buzău'	45.56	41.50 to 49.62	Yes	****	<0.0001
C ₀ (H ₂ O): 'Aromat de Buzău' vs. 1:1 BEt: 'Genovese'	68.89	64.83 to 72.95	Yes	****	<0.0001
C ₀ (H ₂ O): 'Aromat de Buzău' vs. 1:1 BEt: 'Aromat de Buzău'	68.89	64.83 to 72.95	Yes	****	<0.0001
C ₀ (H ₂ O): 'Aromat de Buzău' vs. 1:1 FEt: 'Genovese'	28.89	24.83 to 32.95	Yes	****	<0.0001
C ₀ (H ₂ O): 'Aromat de Buzău' vs. 1:1 FEt: 'Aromat de Buzău'	35.56	31.50 to 39.62	Yes	****	<0.0001
C ₀ (H ₂ O): 'Aromat de Buzău' vs. C ₂ (MeOH 70%): 'Genovese'	68.89	64.83 to 72.95	Yes	****	<0.0001
C ₀ (H ₂ O): 'Aromat de Buzău' vs. C ₂ (MeOH 70%): 'Aromat de Buzău'	68.89	64.83 to 72.95	Yes	****	<0.0001
C ₀ (H ₂ O): 'Aromat de Buzău' vs. BEt: 'Genovese'	68.89	64.83 to 72.95	Yes	****	<0.0001
C ₀ (H ₂ O): 'Aromat de Buzău' vs. BEt: 'Aromat de Buzău'	68.89	64.83 to 72.95	Yes	****	<0.0001
C ₀ (H ₂ O): 'Aromat de Buzău' vs. FEt: 'Genovese'	68.89	64.83 to 72.95	Yes	****	<0.0001
C ₀ (H ₂ O): 'Aromat de Buzău' vs. FEt: 'Aromat de Buzău'	68.89	64.83 to 72.95	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Genovese' vs. C ₁ (MeOH 35%): 'Aromat de Buzău'	46.67	42.61 to 50.73	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Genovese' vs. 1:1 BEt: 'Genovese'	70	65.94 to 74.06	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Genovese' vs. 1:1 BEt: 'Aromat de Buzău'	70	65.94 to 74.06	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Genovese' vs. 1:1 FEt: 'Genovese'	30	25.94 to 34.06	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Genovese' vs. 1:1 FEt: 'Aromat de Buzău'	36.67	32.61 to 40.73	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Genovese' vs. C ₂ (MeOH 70%): 'Genovese'	70	65.94 to 74.06	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Genovese' vs. C ₂ (MeOH 70%): 'Aromat de Buzău'	70	65.94 to 74.06	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Genovese' vs. BEt: 'Genovese'	70	65.94 to 74.06	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Genovese' vs. BEt: 'Aromat de Buzău'	70	65.94 to 74.06	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Genovese' vs. FEt: 'Genovese'	70	65.94 to 74.06	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Genovese' vs. FEt: 'Aromat de Buzău'	70	65.94 to 74.06	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Aromat de Buzău' vs. 1:1 BEt: 'Genovese'	23.33	19.27 to 27.39	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Aromat de Buzău' vs. 1:1 BEt: 'Aromat de Buzău'	23.33	19.27 to 27.39	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Aromat de Buzău' vs. 1:1 FEt: 'Genovese'	-16.67	-20.73 to -12.61	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Aromat de Buzău' vs. 1:1 FEt: 'Aromat de Buzău'	-10	-14.06 to -5.941	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Aromat de Buzău' vs. C ₂ (MeOH 70%): 'Genovese'	23.33	19.27 to 27.39	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Aromat de Buzău' vs. C ₂ (MeOH 70%): 'Aromat de Buzău'	23.33	19.27 to 27.39	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Aromat de Buzău' vs. BEt: 'Genovese'	23.33	19.27 to 27.39	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Aromat de Buzău' vs. BEt: 'Aromat de Buzău'	23.33	19.27 to 27.39	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Aromat de Buzău' vs. FEt: 'Genovese'	23.33	19.27 to 27.39	Yes	****	<0.0001
C ₁ (MeOH 35%): 'Aromat de Buzău' vs. FEt: 'Aromat de Buzău'	23.33	19.27 to 27.39	Yes	****	<0.0001

BE= bulb extract; FE= flower extract; t= treatment.

To be continued....

Table S1 - Tukey's multiple comparisons test results for *O. basilicum* seed germination (FGP)

Tukey's multiple comparisons test	Mean Diff.	95.00% CI of diff.	Below threshold?	Summary	Adjusted P Value
1:1 BEt: 'Genovese' vs. 1:1 BEt: 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
1:1 BEt: 'Genovese' vs. 1:1 FEt: 'Genovese'	-40	-44.06 to -35.94	Yes	****	<0.0001
1:1 BEt: 'Genovese' vs. 1:1 FEt: 'Aromat de Buzău'	-33.33	-37.39 to -29.27	Yes	****	<0.0001
1:1 BEt: 'Genovese' vs. C ₂ (MeOH 70%): 'Genovese'	0	-4.059 to 4.059	No	NS	>0.9999
1:1 BEt: 'Genovese' vs. C ₂ (MeOH 70%): 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
1:1 BEt: 'Genovese' vs. BEt: 'Genovese'	0	-4.059 to 4.059	No	NS	>0.9999
1:1 BEt: 'Genovese' vs. BEt: 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
1:1 BEt: 'Genovese' vs. FEt: 'Genovese'	0	-4.059 to 4.059	No	NS	>0.9999
1:1 BEt: 'Genovese' vs. FEt: 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
1:1 BEt: 'Aromat de Buzău' vs. 1:1 FEt: 'Genovese'	-40	-44.06 to -35.94	Yes	****	<0.0001
1:1 BEt: 'Aromat de Buzău' vs. 1:1 FEt: 'Aromat de Buzău'	-33.33	-37.39 to -29.27	Yes	****	<0.0001
1:1 BEt: 'Aromat de Buzău' vs. C ₂ (MeOH 70%): 'Genovese'	0	-4.059 to 4.059	No	NS	>0.9999
1:1 BEt: 'Aromat de Buzău' vs. C ₂ (MeOH 70%): 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
1:1 BEt: 'Aromat de Buzău' vs. BEt: 'Genovese'	0	-4.059 to 4.059	No	NS	>0.9999
1:1 BEt: 'Aromat de Buzău' vs. BEt: 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
1:1 BEt: 'Aromat de Buzău' vs. FEt: 'Genovese'	0	-4.059 to 4.059	No	NS	>0.9999
1:1 BEt: 'Aromat de Buzău' vs. FEt: 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
1:1 FEt: 'Genovese' vs. 1:1 FEt: 'Aromat de Buzău'	6.67	2.611 to 10.73	Yes	****	<0.0001
1:1 FEt: 'Genovese' vs. C ₂ (MeOH 70%): 'Genovese'	40	35.94 to 44.06	Yes	****	<0.0001
1:1 FEt: 'Genovese' vs. C ₂ (MeOH 70%): 'Aromat de Buzău'	40	35.94 to 44.06	Yes	****	<0.0001
1:1 FEt: 'Genovese' vs. BEt: 'Genovese'	40	35.94 to 44.06	Yes	****	<0.0001
1:1 FEt: 'Genovese' vs. BEt: 'Aromat de Buzău'	40	35.94 to 44.06	Yes	****	<0.0001
1:1 FEt: 'Genovese' vs. FEt: 'Genovese'	40	35.94 to 44.06	Yes	****	<0.0001
1:1 FEt: 'Genovese' vs. FEt: 'Aromat de Buzău'	40	35.94 to 44.06	Yes	****	<0.0001
1:1 FEt: 'Aromat de Buzău' vs. C ₂ (MeOH 70%): 'Genovese'	33.33	29.27 to 37.39	Yes	****	<0.0001
1:1 FEt: 'Aromat de Buzău' vs. C ₂ (MeOH 70%): 'Aromat de Buzău'	33.33	29.27 to 37.39	Yes	****	<0.0001
1:1 FEt: 'Aromat de Buzău' vs. BEt: 'Genovese'	33.33	29.27 to 37.39	Yes	****	<0.0001
1:1 FEt: 'Aromat de Buzău' vs. BEt: 'Aromat de Buzău'	33.33	29.27 to 37.39	Yes	****	<0.0001
1:1 FEt: 'Aromat de Buzău' vs. FEt: 'Genovese'	33.33	29.27 to 37.39	Yes	****	<0.0001
1:1 FEt: 'Aromat de Buzău' vs. FEt: 'Aromat de Buzău'	33.33	29.27 to 37.39	Yes	****	<0.0001
C ₂ (MeOH 70%): 'Genovese' vs. C ₂ (MeOH 70%): 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
C ₂ (MeOH 70%): 'Genovese' vs. BEt: 'Genovese'	0	-4.059 to 4.059	No	NS	>0.9999
C ₂ (MeOH 70%): 'Genovese' vs. BEt: 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
C ₂ (MeOH 70%): 'Genovese' vs. FEt: 'Genovese'	0	-4.059 to 4.059	No	NS	>0.9999
C ₂ (MeOH 70%): 'Genovese' vs. FEt: 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
C ₂ (MeOH 70%): 'Aromat de Buzău' vs. BEt: 'Genovese'	0	-4.059 to 4.059	No	NS	>0.9999
C ₂ (MeOH 70%): 'Aromat de Buzău' vs. BEt: 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
C ₂ (MeOH 70%): 'Aromat de Buzău' vs. FEt: 'Genovese'	0	-4.059 to 4.059	No	NS	>0.9999
C ₂ (MeOH 70%): 'Aromat de Buzău' vs. FEt: 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
BEt: 'Genovese' vs. BEt: 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
BEt: 'Genovese' vs. FEt: 'Genovese'	0	-4.059 to 4.059	No	NS	>0.9999
BEt: 'Genovese' vs. FEt: 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
BEt: 'Aromat de Buzău' vs. FEt: 'Genovese'	0	-4.059 to 4.059	No	NS	>0.9999
BEt: 'Aromat de Buzău' vs. FEt: 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999
FEt: 'Genovese' vs. FEt: 'Aromat de Buzău'	0	-4.059 to 4.059	No	NS	>0.9999

BE= bulb extract; FE= flower extract; t= treatment.

Table S2 - Tukey's multiple comparisons test results for epicotyl circumference measurement of *O. basilicum* plantlets

Treatment	Mean Diff.	95.00% CI of diff.	Below threshold?	Summary	Adjusted P Value
<i>'Italiano Classico'</i>					
C ₀ (H ₂ O) vs. C ₁ (MeOH 35%)	-176.3	-922.7 to 570.0	No	NS	0.9868
C ₀ (H ₂ O) vs. 1:1 BEt	179.7	-566.7 to 926.0	No	NS	0.9855
C ₀ (H ₂ O) vs. 1:1 FEt	-673.3	-1420 to 72.99	No	NS	0.0962
C ₀ (H ₂ O) vs. C ₂ (MeOH 70%)	259.7	-486.7 to 1006	No	NS	0.9165
C ₀ (H ₂ O) vs. BEt	6567	5820 to 7313	Yes	****	<0.0001
C ₀ (H ₂ O) vs. FEt	-1114	-1860 to -367.3	Yes	**	0.0012
C ₁ (MeOH 35%) vs. 1:1 BEt	356	-390.3 to 1102	No	NS	0.7239
C ₁ (MeOH 35%) vs. 1:1 FEt	-497	-1243 to 249.3	No	NS	0.3635
C ₁ (MeOH 35%) vs. C ₂ (MeOH 70%)	436	-310.3 to 1182	No	NS	0.5139
1:1 BEt vs. 1:1 FEt	-853	-1599 to -106.7	Yes	*	0.0179
1:1 BEt vs. BEt	6387	5641 to 7133	Yes	****	<0.0001
1:1 BEt vs. FEt	-1293	-2040 to -547.0	Yes	***	0.0002
1:1 FEt vs. BEt	7240	6494 to 7986	Yes	****	<0.0001
1:1 FEt vs. FEt	-440.3	-1187 to 306.0	No	NS	0.5025
C ₂ (MeOH 70%) vs. BEt	6307	5561 to 7053	Yes	****	<0.0001
C ₂ (MeOH 70%) vs. FEt	-1373	-2120 to -627.0	Yes	****	<0.0001
BEt vs. FEt	-7680	-8427 to -6934	Yes	****	<0.0001
<i>'Aromat de Buzău'</i>					
C ₀ (H ₂ O) vs. C ₁ (MeOH 35%)	35.67	-710.7 to 782.0	No	NS	>0.9999
C ₀ (H ₂ O) vs. 1:1 BEt	1879	1132 to 2625	Yes	****	<0.0001
C ₀ (H ₂ O) vs. 1:1 FEt	302.7	-443.7 to 1049	No	NS	0.8443
C ₀ (H ₂ O) vs. C ₂ (MeOH 70%)	17.67	-728.7 to 764.0	No	NS	>0.9999
C ₀ (H ₂ O) vs. BEt	-1497	-2243 to -750.3	Yes	****	<0.0001
C ₀ (H ₂ O) vs. FEt	586.7	-159.7 to 1333	No	NS	0.1949
C ₁ (MeOH 35%) vs. 1:1 BEt	1843	1097 to 2589	Yes	****	<0.0001
C ₁ (MeOH 35%) vs. 1:1 FEt	267	-479.3 to 1013	No	NS	0.906
C ₁ (MeOH 35%) vs. C ₂ (MeOH 70%)	-18	-764.3 to 728.3	No	NS	>0.9999
1:1 BEt vs. 1:1 FEt	-1576	-2322 to -829.7	Yes	****	<0.0001
1:1 BEt vs. BEt	-3375	-4122 to -2629	Yes	****	<0.0001
1:1 BEt vs. FEt	-1292	-2038 to -545.7	Yes	***	0.0002
1:1 FEt vs. BEt	-1799	-2546 to -1053	Yes	****	<0.0001
1:1 FEt vs. FEt	284	-462.3 to 1030	No	NS	0.8787
C ₂ (MeOH 70%) vs. BEt	-1514	-2261 to -768.0	Yes	****	<0.0001
C ₂ (MeOH 70%) vs. FEt	569	-177.3 to 1315	No	NS	0.2225
BEt vs. FEt	2083	1337 to 2830	Yes	****	<0.0001

BE= bulb extract; FE= flower extract; t= treatment.

Table S3 - Tukey's multiple comparisons test results for the stomatal area measurement in treated O. basilicum plantlets

Treatments	Inferior leaf surface					Superior leaf surface				
	Mean Diff.	95.00% CI of diff.	Below threshold?	Summary	Adjusted P Value	Mean Diff.	95.00% CI of diff.	Below threshold?	Summary	Adjusted P Value
<i>'Italiano Classico'</i>										
C ₀ (H ₂ O) vs. C ₁ (MeOH 35%)	122.8	-24.77 to 270.3	No	NS	0.1615	22.84	-85.71 to 131.4	No	NS	0.9947
C ₀ (H ₂ O) vs. 1:1 BEt	-171.6	-319.1 to -24.03	Yes	*	0.0132	-307.7	-416.3 to -199.2	Yes	****	<0.0001
C ₀ (H ₂ O) vs. 1:1 FEt	-313.2	-460.7 to -165.6	Yes	****	<0.0001	40.38	-68.17 to 148.9	No	NS	0.9107
C ₀ (H ₂ O) vs. C ₂ (MeOH 70%)	179.3	31.77 to 326.9	Yes	**	0.0083	67.22	-41.33 to 175.8	No	NS	0.4869
C ₀ (H ₂ O) vs. BEt	91.26	-56.29 to 238.8	No	NS	0.4884	43.12	-65.43 to 151.7	No	NS	0.882
C ₀ (H ₂ O) vs. FEt	-219.9	-367.4 to -72.35	Yes	***	0.0006	-340.2	-448.8 to -231.7	Yes	****	<0.0001
C ₁ (MeOH 35%) vs. 1:1 BEt	-294.4	-441.9 to -146.8	Yes	****	<0.0001	-330.6	-439.1 to -222.0	Yes	****	<0.0001
C ₁ (MeOH 35%) vs. 1:1 FEt	-435.9	-583.5 to -288.4	Yes	****	<0.0001	17.54	-91.01 to 126.1	No	NS	0.9988
C ₁ (MeOH 35%) vs. C ₂ (MeOH 70%)	56.54	-91.01 to 204.1	No	NS	0.8986	44.38	-64.17 to 152.9	No	NS	0.8672
1:1 BEt vs. 1:1 FEt	-141.6	-289.1 to 5.967	No	NS	0.0677	348.1	239.6 to 456.7	Yes	****	<0.0001
1:1 BEt vs. BEt	262.8	115.3 to 410.4	Yes	****	<0.0001	350.9	242.3 to 459.4	Yes	****	<0.0001
1:1 BEt vs. FEt	-48.32	-195.9 to 99.23	No	NS	0.9498	-32.48	-141.0 to 76.07	No	NS	0.9674
1:1 FEt vs. BEt	404.4	256.9 to 552.0	Yes	****	<0.0001	2.74	-105.8 to 111.3	No	NS	>0.9999
1:1 FEt vs. FEt	93.26	-54.29 to 240.8	No	NS	0.4621	-380.6	-489.1 to -272.1	Yes	****	<0.0001
C ₂ (MeOH 70%) vs. BEt	-88.06	-235.6 to 59.49	No	NS	0.5311	-24.1	-132.6 to 84.45	No	NS	0.993
C ₂ (MeOH 70%) vs. FEt	-399.2	-546.8 to -251.7	Yes	****	<0.0001	-407.4	-516.0 to -298.9	Yes	****	<0.0001
BEt vs. FEt	-311.2	-458.7 to -163.6	Yes	****	<0.0001	-383.3	-491.9 to -274.8	Yes	****	<0.0001
<i>'Aromat de Buzău'</i>										
C ₀ (H ₂ O) vs. C ₁ (MeOH 35%)	-74.12	-221.7 to 73.43	No	NS	0.7163	-33.9	-142.4 to 74.65	No	NS	0.9599
C ₀ (H ₂ O) vs. 1:1 BEt	22.12	-125.4 to 169.7	No	NS	0.9992	33.08	-75.47 to 141.6	No	NS	0.9644
C ₀ (H ₂ O) vs. 1:1 FEt	-133.5	-281.0 to 14.05	No	NS	0.1	-227	-335.5 to -118.4	Yes	****	<0.0001
C ₀ (H ₂ O) vs. C ₂ (MeOH 70%)	-8.54	-156.1 to 139.0	No	NS	>0.9999	18.12	-90.43 to 126.7	No	NS	0.9985
C ₀ (H ₂ O) vs. BEt	-436.3	-583.8 to -288.7	Yes	****	<0.0001	-223.8	-332.3 to -115.2	Yes	****	<0.0001
C ₀ (H ₂ O) vs. FEt	-84.14	-231.7 to 63.41	No	NS	0.5841	-26.7	-135.2 to 81.85	No	NS	0.9879
C ₁ (MeOH 35%) vs. 1:1 BEt	96.24	-51.31 to 243.8	No	NS	0.4239	66.98	-41.57 to 175.5	No	NS	0.4912
C ₁ (MeOH 35%) vs. 1:1 FEt	-59.38	-206.9 to 88.17	No	NS	0.8755	-193.1	-301.6 to -84.53	Yes	****	<0.0001
C ₁ (MeOH 35%) vs. C ₂ (MeOH 70%)	65.58	-81.97 to 213.1	No	NS	0.8159	52.02	-56.53 to 160.6	No	NS	0.7581
1:1 BEt vs. 1:1 FEt	-155.6	-303.2 to -8.073	Yes	*	0.0326	-260.1	-368.6 to -151.5	Yes	****	<0.0001
1:1 BEt vs. BEt	-458.4	-605.9 to -310.9	Yes	****	<0.0001	-256.8	-365.4 to -148.3	Yes	****	<0.0001
1:1 BEt vs. FEt	-106.3	-253.8 to 41.29	No	NS	0.3065	-59.78	-168.3 to 48.77	No	NS	0.623
1:1 FEt vs. BEt	-302.8	-450.3 to -155.2	Yes	****	<0.0001	3.22	-105.3 to 111.8	No	NS	>0.9999
1:1 FEt vs. FEt	49.36	-98.19 to 196.9	No	NS	0.9446	200.3	91.73 to 308.8	Yes	****	<0.0001
C ₂ (MeOH 70%) vs. BEt	-427.7	-575.3 to -280.2	Yes	****	<0.0001	-241.9	-350.4 to -133.3	Yes	****	<0.0001
C ₂ (MeOH 70%) vs. FEt	-75.6	-223.1 to 71.95	No	NS	0.6975	-44.82	-153.4 to 63.73	No	NS	0.8619
BEt vs. FEt	352.1	204.6 to 499.7	Yes	****	<0.0001	197.1	88.51 to 305.6	Yes	****	<0.0001

BE= bulb extract; FE= flower extract; t= treatment.

Table S4 - Tukey's multiple comparisons test results for the stomatal area measurement in treated *O. basilicum* plantlets

Treatments	Inferior leaf surface					Superior leaf surface				
	Mean Diff.	95.00% CI of diff.	Below threshold?	Summary	Adjusted P Value	Mean Diff.	95.00% CI of diff.	Below threshold?	Summary	Adjusted P Value
<i>Italiano Classico'</i>										
C ₀ (H ₂ O) vs. C ₁ (MeOH 35%)	-28.33	-68.90 to 12.24	No	NS	0.311	2	-12.31 to 16.31	No	NS	0.9992
C ₀ (H ₂ O) vs. 1:1 BEt	0.6667	-39.90 to 41.24	No	NS	>0.9999	1	-13.31 to 15.31	No	NS	>0.9999
C ₀ (H ₂ O) vs. 1:1 FEt	1	-39.57 to 41.57	No	NS	>0.9999	-12	-26.31 to 2.313	No	NS	0.1434
C ₀ (H ₂ O) vs. C ₂ (MeOH 70%)	-13.33	-53.90 to 27.24	No	NS	0.935	-4	-18.31 to 10.31	No	NS	0.9695
C ₀ (H ₂ O) vs. BEt	-54.67	-95.24 to -	Yes	**	0.0038	-7	-21.31 to 7.313	No	NS	0.7012
C ₀ (H ₂ O) vs. FEt	-6.667	-47.24 to 33.90	No	NS	0.9981	-0.3333	-14.65 to 13.98	No	NS	>0.9999
C ₁ (MeOH 35%) vs. 1:1 BEt	29	-11.57 to 69.57	No	NS	0.2863	-1	-15.31 to 13.31	No	NS	>0.9999
C ₁ (MeOH 35%) vs. 1:1 FEt	29.33	-11.24 to 69.90	No	NS	0.2745	-14	-28.31 to	No	NS	0.0581
C ₁ (MeOH 35%) vs. C ₂ (MeOH 70%)	15	-25.57 to 55.57	No	NS	0.8921	-6	-20.31 to 8.313	No	NS	0.8236
1:1 BEt vs. 1:1 FEt	0.3333	-40.24 to 40.90	No	NS	>0.9999	-13	-27.31 to 1.313	No	NS	0.0925
1:1 BEt vs. BEt	-55.33	-95.90 to -	Yes	**	0.0033	-8	-22.31 to 6.313	No	NS	0.5638
1:1 BEt vs. FEt	-7.333	-47.90 to 33.24	No	NS	0.9968	-1.333	-15.65 to 12.98	No	NS	>0.9999
1:1 FEt vs. BEt	-55.67	-96.24 to -	Yes	**	0.0031	5	-9.313 to 19.31	No	NS	0.9151
1:1 FEt vs. FEt	-7.667	-48.24 to 32.90	No	NS	0.996	11.67	-2.647 to 25.98	No	NS	0.1648
C ₂ (MeOH 70%) vs. BEt	-41.33	-81.90 to -	Yes	*	0.0438	-3	-17.31 to 11.31	No	NS	0.993
C ₂ (MeOH 70%) vs. FEt	6.667	-33.90 to 47.24	No	NS	0.9981	3.667	-10.65 to 17.98	No	NS	0.9801
BEt vs. FEt	48	7.432 to 88.57	Yes	*	0.0132	6.667	-7.647 to 20.98	No	NS	0.7446
<i>'Aromat de Buzău'</i>										
C ₀ (H ₂ O) vs. C ₁ (MeOH 35%)	-3.667	-44.24 to 36.90	No	NS	>0.9999	-9	-23.31 to 5.313	No	NS	0.4291
C ₀ (H ₂ O) vs. 1:1 BEt	16	-24.57 to 56.57	No	NS	0.8602	-0.6667	-14.98 to 13.65	No	NS	>0.9999
C ₀ (H ₂ O) vs. 1:1 FEt	22.33	-18.24 to 62.90	No	NS	0.5805	4.333	-9.980 to 18.65	No	NS	0.9553
C ₀ (H ₂ O) vs. C ₂ (MeOH 70%)	-2.333	-42.90 to 38.24	No	NS	>0.9999	1.667	-12.65 to 15.98	No	NS	0.9997
C ₀ (H ₂ O) vs. BEt	23.33	-17.24 to 63.90	No	NS	0.5316	5.667	-8.647 to 19.98	No	NS	0.8581
C ₀ (H ₂ O) vs. FEt	-65.67	-106.2 to -	Yes	***	0.0004	-54	-68.31 to -	Yes	****	<0.0001
C ₁ (MeOH 35%) vs. 1:1 BEt	19.67	-20.90 to 60.24	No	NS	0.7093	8.333	-5.980 to 22.65	No	NS	0.5178
C ₁ (MeOH 35%) vs. 1:1 FEt	26	-14.57 to 66.57	No	NS	0.4071	13.33	-0.9800 to	No	NS	0.0795
C ₁ (MeOH 35%) vs. C ₂ (MeOH 70%)	1.333	-39.24 to 41.90	No	NS	>0.9999	10.67	-3.647 to 24.98	No	NS	0.2442
1:1 BEt vs. 1:1 FEt	6.333	-34.24 to 46.90	No	NS	0.9986	5	-9.313 to 19.31	No	NS	0.9151
1:1 BEt vs. BEt	7.333	-33.24 to 47.90	No	NS	0.9968	6.333	-7.980 to 20.65	No	NS	0.7856
1:1 BEt vs. FEt	-81.67	-122.2 to -	Yes	****	<0.0001	-53.33	-67.65 to -	Yes	****	<0.0001
1:1 FEt vs. BEt	1	-39.57 to 41.57	No	NS	>0.9999	1.333	-12.98 to 15.65	No	NS	>0.9999
1:1 FEt vs. FEt	-88	-128.6 to -	Yes	****	<0.0001	-58.33	-72.65 to -	Yes	****	<0.0001
C ₂ (MeOH 70%) vs. BEt	25.67	-14.90 to 66.24	No	NS	0.4219	4	-10.31 to 18.31	No	NS	0.9695
C ₂ (MeOH 70%) vs. FEt	-63.33	-103.9 to -	Yes	***	0.0007	-55.67	-69.98 to -	Yes	****	<0.0001
BEt vs. FEt	-89	-129.6 to -	Yes	****	<0.0001	-59.67	-73.98 to -	Yes	****	<0.0001

BE= bulb extract; FE= flower extract; t= treatment.

Table S5 - Tukey's multiple comparisons test results for tector hairs density analysis on the leaf surfaces of treated *O. basilicum* plantlets

Treatments	Inferior leaf surface					Superior leaf surface				
	Mean Diff.	95.00% CI of diff.	Below threshold?	Summary	Adjusted P Value	Mean Diff.	95.00% CI of diff.	Below threshold?	Summary	Adjusted P Value
<i>'Italiano Classico'</i>										
C ₀ (H ₂ O) vs. C ₁ (MeOH 35%)	-1.667	-4.861 to 1.527	No	NS	0.6376	5	-6.340 to 16.34	No	NS	0.7882
C ₀ (H ₂ O) vs. 1:1 BEt	-1.667	-4.861 to 1.527	No	NS	0.6376	6	-5.340 to 17.34	No	NS	0.6231
C ₀ (H ₂ O) vs. 1:1 FEt	-2	-5.194 to 1.194	No	NS	0.4339	6	-5.340 to 17.34	No	NS	0.6231
C ₀ (H ₂ O) vs. C ₂ (MeOH 70%)	-0.6667	-3.861 to 2.527	No	NS	0.9931	4.667	-6.673 to 16.01	No	NS	0.8354
C ₀ (H ₂ O) vs. BEt	-4	-7.194 to -	Yes	**	0.0078	2	-9.340 to 13.34	No	NS	0.9972
C ₀ (H ₂ O) vs. FEt	-0.6667	-3.861 to 2.527	No	NS	0.9931	-0.3333	-11.67 to 11.01	No	NS	>0.9999
C ₁ (MeOH 35%) vs. 1:1 BEt	0	-3.194 to 3.194	No	NS	>0.9999	1	-10.34 to 12.34	No	NS	>0.9999
C ₁ (MeOH 35%) vs. 1:1 FEt	-0.3333	-3.527 to 2.861	No	NS	0.9999	1	-10.34 to 12.34	No	NS	>0.9999
C ₁ (MeOH 35%) vs. C ₂ (MeOH 70%)	1	-2.194 to 4.194	No	NS	0.9478	-0.3333	-11.67 to 11.01	No	NS	>0.9999
1:1 BEt vs. 1:1 FEt	-0.3333	-3.527 to 2.861	No	NS	0.9999	0	-11.34 to 11.34	No	NS	>0.9999
1:1 BEt vs. BEt	-2.333	-5.527 to	No	NS	0.264	-4	-15.34 to 7.340	No	NS	0.9115
1:1 BEt vs. FEt	1	-2.194 to 4.194	No	NS	0.9478	-6.333	-17.67 to 5.007	No	NS	0.5646
1:1 FEt vs. BEt	-2	-5.194 to 1.194	No	NS	0.4339	-4	-15.34 to 7.340	No	NS	0.9115
1:1 FEt vs. FEt	1.333	-1.861 to 4.527	No	NS	0.8263	-6.333	-17.67 to 5.007	No	NS	0.5646
C ₂ (MeOH 70%) vs. BEt	-3.333	-6.527 to -	Yes	*	0.0368	-2.667	-14.01 to 8.673	No	NS	0.9871
C ₂ (MeOH 70%) vs. FEt	4.441e-	-3.194 to 3.194	No	NS	>0.9999	-5	-16.34 to 6.340	No	NS	0.7882
BEt vs. FEt	3.333	0.1392 to	Yes	*	0.0368	-2.333	-13.67 to 9.007	No	NS	0.9936
<i>'Aromat de Buzău'</i>										
C ₀ (H ₂ O) vs. C ₁ (MeOH 35%)	0	-3.194 to 3.194	No	NS	>0.9999	-12.33	-23.67 to -	Yes	*	0.0269
C ₀ (H ₂ O) vs. 1:1 BEt	0	-3.194 to 3.194	No	NS	>0.9999	-7.333	-18.67 to 4.007	No	NS	0.3968
C ₀ (H ₂ O) vs. 1:1 FEt	-0.6667	-3.861 to 2.527	No	NS	0.9931	-6.333	-17.67 to 5.007	No	NS	0.5646
C ₀ (H ₂ O) vs. C ₂ (MeOH 70%)	-0.3333	-3.527 to 2.861	No	NS	0.9999	-6	-17.34 to 5.340	No	NS	0.6231
C ₀ (H ₂ O) vs. BEt	0	-3.194 to 3.194	No	NS	>0.9999	-2	-13.34 to 9.340	No	NS	0.9972
C ₀ (H ₂ O) vs. FEt	-0.6667	-3.861 to 2.527	No	NS	0.9931	-1.333	-12.67 to 10.01	No	NS	0.9997
C ₁ (MeOH 35%) vs. 1:1 BEt	0	-3.194 to 3.194	No	NS	>0.9999	5	-6.340 to 16.34	No	NS	0.7882
C ₁ (MeOH 35%) vs. 1:1 FEt	-0.6667	-3.861 to 2.527	No	NS	0.9931	6	-5.340 to 17.34	No	NS	0.6231
C ₁ (MeOH 35%) vs. C ₂ (MeOH 70%)	-0.3333	-3.527 to 2.861	No	NS	0.9999	6.333	-5.007 to 17.67	No	NS	0.5646
1:1 BEt vs. 1:1 FEt	-0.6667	-3.861 to 2.527	No	NS	0.9931	1	-10.34 to 12.34	No	NS	>0.9999
1:1 BEt vs. BEt	0	-3.194 to 3.194	No	NS	>0.9999	5.333	-6.007 to 16.67	No	NS	0.7363
1:1 BEt vs. FEt	-0.6667	-3.861 to 2.527	No	NS	0.9931	6	-5.340 to 17.34	No	NS	0.6231
1:1 FEt vs. BEt	0.6667	-2.527 to 3.861	No	NS	0.9931	4.333	-7.007 to 15.67	No	NS	0.8767
1:1 FEt vs. FEt	0	-3.194 to 3.194	No	NS	>0.9999	5	-6.340 to 16.34	No	NS	0.7882
C ₂ (MeOH 70%) vs. BEt	0.3333	-2.861 to 3.527	No	NS	0.9999	4	-7.340 to 15.34	No	NS	0.9115
C ₂ (MeOH 70%) vs. FEt	-0.3333	-3.527 to 2.861	No	NS	0.9999	4.667	-6.673 to 16.01	No	NS	0.8354
BEt vs. FEt	-0.6667	-3.861 to 2.527	No	NS	0.9931	0.6667	-10.67 to 12.01	No	NS	>0.9999

BE= bulb extract; FE= flower extract; t= treatment.

Table S6 - Tukey's multiple comparisons test results for secretory hairs density analysis on the leaf surfaces of treated *O. basilicum* plantlets

Treatments	Inferior leaf surface					Superior leaf surface				
	Mean Diff.	95.00% CI of diff.	Below threshold?	Summary	Adjusted P Value	Mean Diff.	95.00% CI of diff.	Below threshold?	Summary	Adjusted P Value
<i>'Italiano Classico'</i>										
C ₀ (H ₂ O) vs. C ₁ (MeOH 35%)	1	-5.715 to 7.715	No	NS	0.9989	0	-8.627 to 8.627	No	NS	>0.9999
C ₀ (H ₂ O) vs. 1:1 BEt	3.333	-3.382 to 10.05	No	NS	0.6872	-0.6667	-9.293 to 7.960	No	NS	>0.9999
C ₀ (H ₂ O) vs. 1:1 FEt	0	-6.715 to 6.715	No	NS	>0.9999	0	-8.627 to 8.627	No	NS	>0.9999
C ₀ (H ₂ O) vs. C ₂ (MeOH 70%)	2.333	-4.382 to 9.049	No	NS	0.917	-4	-12.63 to 4.627	No	NS	0.7484
C ₀ (H ₂ O) vs. BEt	0.3333	-6.382 to 7.049	No	NS	>0.9999	-1.333	-9.960 to 7.293	No	NS	0.9987
C ₀ (H ₂ O) vs. FEt	1.667	-5.049 to 8.382	No	NS	0.983	-2	-10.63 to 6.627	No	NS	0.988
C ₁ (MeOH 35%) vs. 1:1 BEt	2.333	-4.382 to 9.049	No	NS	0.917	-0.6667	-9.293 to 7.960	No	NS	>0.9999
C ₁ (MeOH 35%) vs. 1:1 FEt	-1	-7.715 to 5.715	No	NS	0.9989	0	-8.627 to 8.627	No	NS	>0.9999
C ₁ (MeOH 35%) vs. C ₂ (MeOH 70%)	1.333	-5.382 to 8.049	No	NS	0.9947	-4	-12.63 to 4.627	No	NS	0.7484
1:1 BEt vs. 1:1 FEt	-3.333	-10.05 to 3.382	No	NS	0.6872	0.6667	-7.960 to 9.293	No	NS	>0.9999
1:1 BEt vs. BEt	-3	-9.715 to 3.715	No	NS	0.7783	-0.6667	-9.293 to 7.960	No	NS	>0.9999
1:1 BEt vs. FEt	-1.667	-8.382 to 5.049	No	NS	0.983	-1.333	-9.960 to 7.293	No	NS	0.9987
1:1 FEt vs. BEt	0.3333	-6.382 to 7.049	No	NS	>0.9999	-1.333	-9.960 to 7.293	No	NS	0.9987
1:1 FEt vs. FEt	1.667	-5.049 to 8.382	No	NS	0.983	-2	-10.63 to 6.627	No	NS	0.988
C ₂ (MeOH 70%) vs. BEt	-2	-8.715 to 4.715	No	NS	0.9586	2.667	-5.960 to 11.29	No	NS	0.9508
C ₂ (MeOH 70%) vs. FEt	-0.6667	-7.382 to 6.049	No	NS	0.9999	2	-6.627 to 10.63	No	NS	0.988
BEt vs. FEt	1.333	-5.382 to 8.049	No	NS	0.9947	-0.6667	-9.293 to 7.960	No	NS	>0.9999
<i>'Aromat de Buzău'</i>										
C ₀ (H ₂ O) vs. C ₁ (MeOH 35%)	0.6667	-6.049 to 7.382	No	NS	0.9999	-1.333	-9.960 to 7.293	No	NS	0.9987
C ₀ (H ₂ O) vs. 1:1 BEt	0.3333	-6.382 to 7.049	No	NS	>0.9999	-4.667	-13.29 to 3.960	No	NS	0.5995
C ₀ (H ₂ O) vs. 1:1 FEt	0.6667	-6.049 to 7.382	No	NS	0.9999	-1	-9.627 to 7.627	No	NS	0.9997
C ₀ (H ₂ O) vs. C ₂ (MeOH 70%)	-3	-9.715 to 3.715	No	NS	0.7783	-14	-22.63 to -	Yes	***	0.0004
C ₀ (H ₂ O) vs. BEt	-1	-7.715 to 5.715	No	NS	0.9989	-2	-10.63 to 6.627	No	NS	0.988
C ₀ (H ₂ O) vs. FEt	-5.333	-12.05 to 1.382	No	NS	0.1861	-7.333	-15.96 to 1.293	No	NS	0.1335
C ₁ (MeOH 35%) vs. 1:1 BEt	-0.3333	-7.049 to 6.382	No	NS	>0.9999	-3.333	-11.96 to 5.293	No	NS	0.8711
C ₁ (MeOH 35%) vs. 1:1 FEt	0	-6.715 to 6.715	No	NS	>0.9999	0.3333	-8.293 to 8.960	No	NS	>0.9999
C ₁ (MeOH 35%) vs. C ₂ (MeOH 70%)	-3.667	-10.38 to 3.049	No	NS	0.5894	-12.67	-21.29 to -	Yes	**	0.0015
1:1 BEt vs. 1:1 FEt	0.3333	-6.382 to 7.049	No	NS	>0.9999	3.667	-4.960 to 12.29	No	NS	0.8143
1:1 BEt vs. BEt	-1.333	-8.049 to 5.382	No	NS	0.9947	2.667	-5.960 to 11.29	No	NS	0.9508
1:1 BEt vs. FEt	-5.667	-12.38 to 1.049	No	NS	0.1387	-2.667	-11.29 to 5.960	No	NS	0.9508
1:1 FEt vs. BEt	-1.667	-8.382 to 5.049	No	NS	0.983	-1	-9.627 to 7.627	No	NS	0.9997
1:1 FEt vs. FEt	-6	-12.72 to	No	NS	0.1017	-6.333	-14.96 to 2.293	No	NS	0.259
C ₂ (MeOH 70%) vs. BEt	2	-4.715 to 8.715	No	NS	0.9586	12	3.373 to 20.63	Yes	**	0.0027
C ₂ (MeOH 70%) vs. FEt	-2.333	-9.049 to 4.382	No	NS	0.917	6.667	-1.960 to 15.29	No	NS	0.21
BEt vs. FEt	-4.333	-11.05 to 2.382	No	NS	0.3992	-5.333	-13.96 to 3.293	No	NS	0.4486

BE= bulb extract; FE= flower extract; t= treatment.

Tector and glandular hairs density

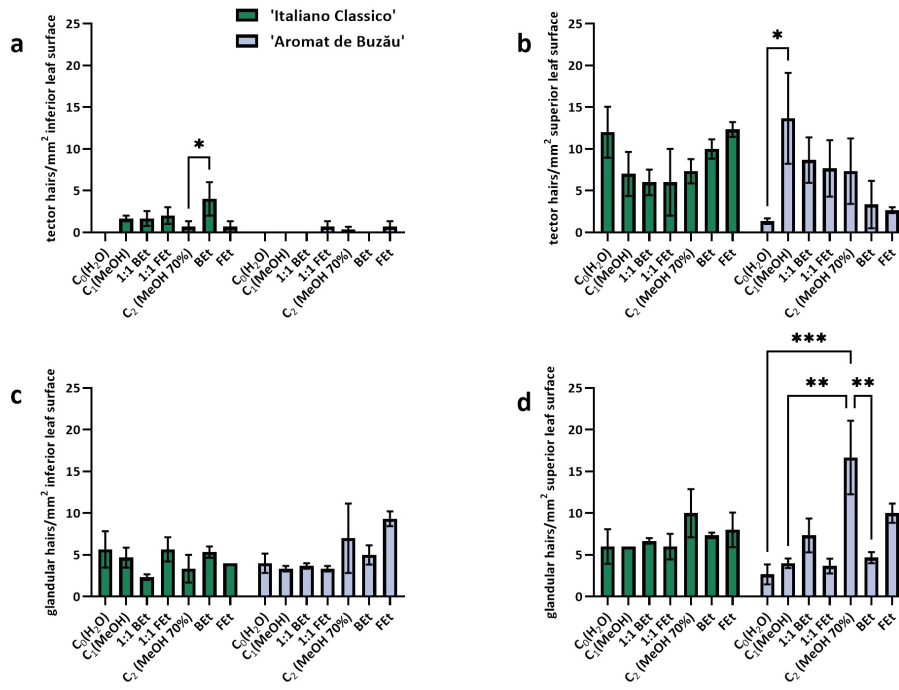


Fig. S1 - Tector and glandular hairs density on the abaxial (a, c) and adaxial (b, d) leaf surfaces of treated *O. basilicum* plantlets.

Variations in chlorophyll a, b and carotenoid pigments content

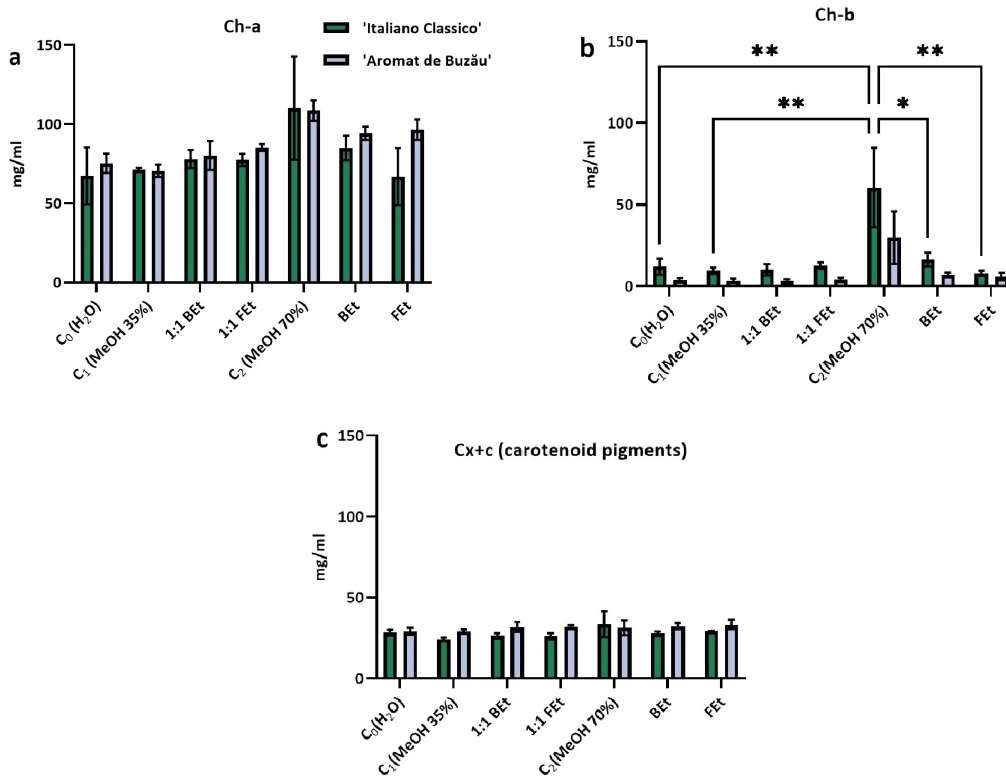


Fig. S2 - Variations in chlorophyll a, b and carotenoid pigments content in treated *O. basilicum* plantlets. BE= bulb extract; FE= flower extract; t= treatment; ** = p<0.01.

Physiological indices of photosynthesis

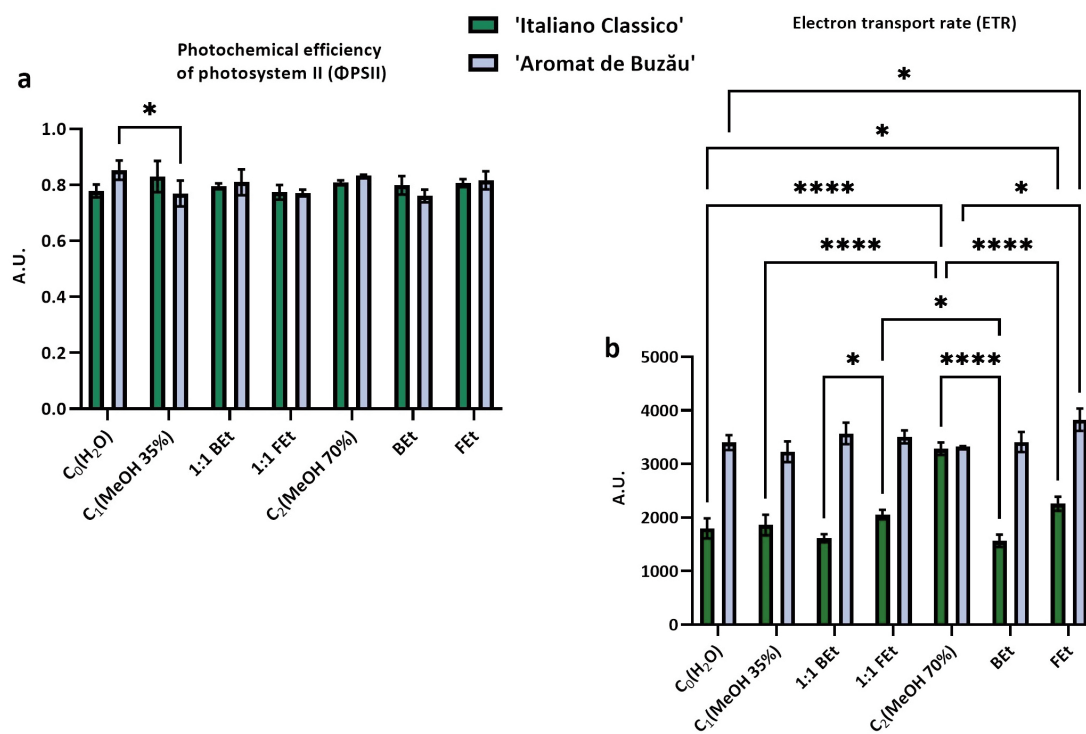


Fig. S3 - Physiological indices of photosynthesis determined through chlorophyll fluorescence assay in treated *O. basilicum* plantlets. BE= bulb extract; FE= flower extract; t= treatment; * = p<0.05; **** = p<0.0001.