

## Supplementary data

### **Occurrence of twelve UV filters and evidence of cis-octinoxate formation in Adriatic coastal waters: Environmental implications**

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**Table S1.** Analysed seawater samples. Sampling and setting details.

<b>Sample<sup>1</sup></b>	<b>Date 2024</b>	<b>Time</b>	<b>Area zone</b>	<b>City</b>	<b>Air Temperature<sup>2</sup></b> Hourly average C°	<b>Surface water temperature (35 cm)<sup>2</sup></b> Hourly average C°	<b>Wind speed<sup>2</sup> (peak gust)</b> Hourly average Km/h	<b>Rad<sup>3</sup> (Cloud Cover)</b> Hourly average W/m <sup>2</sup>	<b>Wave<sup>4</sup></b> Hourly average m	<b>Total tourist presence in the two cities<sup>5</sup></b>
Sa1	July, 28	1:00 -1:30 pm	20	Rimini	31.2	28.2	13 (25)	808 (Clear sky)	0.83	71912
Sa2	July, 28	1:00 -1:30 pm	20	Rimini	31.2	28.2	13 (25)	808 (Clear sky)	0.83	71912
Sa3	July, 28	1:00 -1:30 pm	20	Rimini	31.2	28.2	13 (25)	808 (Clear sky)	0.83	71912
Sa4	July, 28	1:00 -1:30 pm	20	Rimini	31.2	28.2	13 (25)	808 (Clear sky)	0.83	71912
Sb5	July, 7	02:30 pm	17	Rimini	27.2	26.5	13.9 (30)	314 (Cloudy sky)	0.52	69589
Sb6	July, 7	02:30 pm	17	Rimini	27.2	26.5	13.9 (30)	314 (Cloudy sky)	0.52	69589
Sc7	July, 7	02:00 pm	18	Rimini	27.3	26.5	13 (30)	472 (Cloudy sky)	0.51	69589
Sc8	July, 7	02:00 pm	18	Rimini	27.3	26.5	13 (30)	472 (Cloudy sky)	0.51	69589
Sd9	Aug, 8	12:30 pm	110	Riccione	28	29.1	15.7 (23)	874 (Clear sky)	0.33	81865
Sd10	Aug, 8	12:30 pm	110	Riccione	28	29.1	15.7 (23)	874 (Clear sky)	0.33	81865
S11	July, 25	03:30 pm	34	Riccione	26.5	29.3	21.4 (31)	557 (partly cloudy)	0.85	80154
S12	Sep, 1	05:00 pm	34	Riccione	29.1	29.3	7.6 (20)	119 (Clear sky)	0.12	58825
S13	Aug, 9	11:00 am	87	Riccione	27.8	29.4	11.2 (20)	863 (Clear sky)	0.13	81654
S14	Aug, 13	11:00 am	34	Riccione	30.7	30.6	9.4 (19)	850 (Partly cloudy)	0.12	93839

<sup>1</sup> In sample name, the same lower-case letter indicates similar sampling location and time.

<sup>2</sup> [https://meteostat.net/en/station/16149?t=2024-07-28/2024-07-28&utm\\_source=chatgpt.com](https://meteostat.net/en/station/16149?t=2024-07-28/2024-07-28&utm_source=chatgpt.com) Meteorological station in Rimini

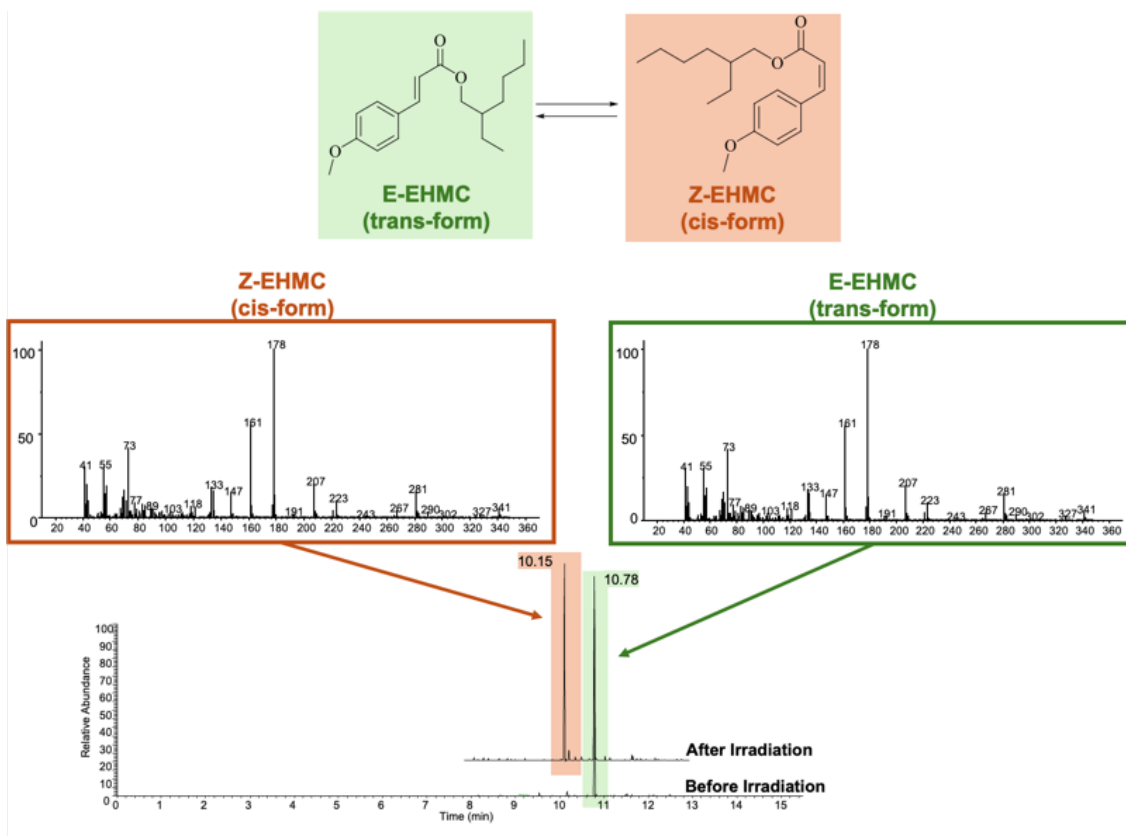
<sup>3</sup> <https://dati-simc.arpae.it/opendata/erg5v2/timeseries/mappa.html> - Rimini cell, modelled value

<sup>4</sup> <https://simc.arpae.it/dext3r/> Buoy Nausicaa2 marine station (Cesenatico)

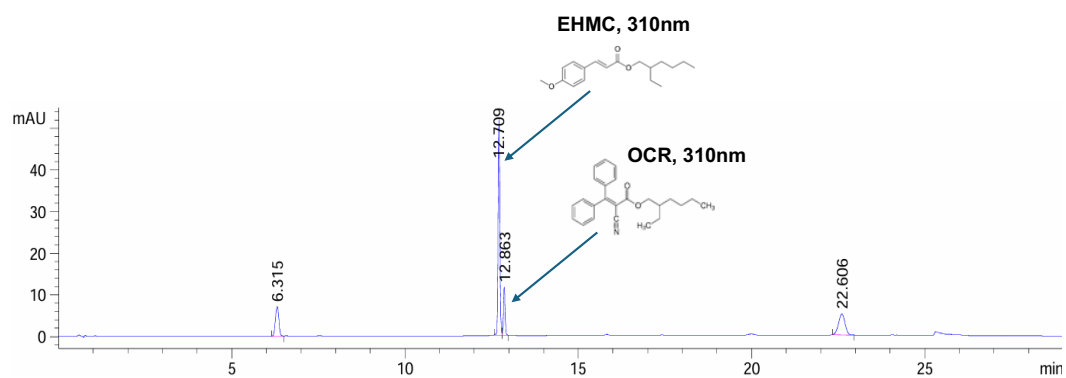
<sup>5</sup> <https://statistica.regione.emilia-romagna.it/statistiche-per-temi/turismo/dati-preliminari/dati-consolidati-2024/analisi-territoriale-della-domanda-turistica/dettaglio-provinciale/rimini>.

**Table S2.** Commercial cosmetic products containing EHMC, including their manufacturer, product name, and listed composition.

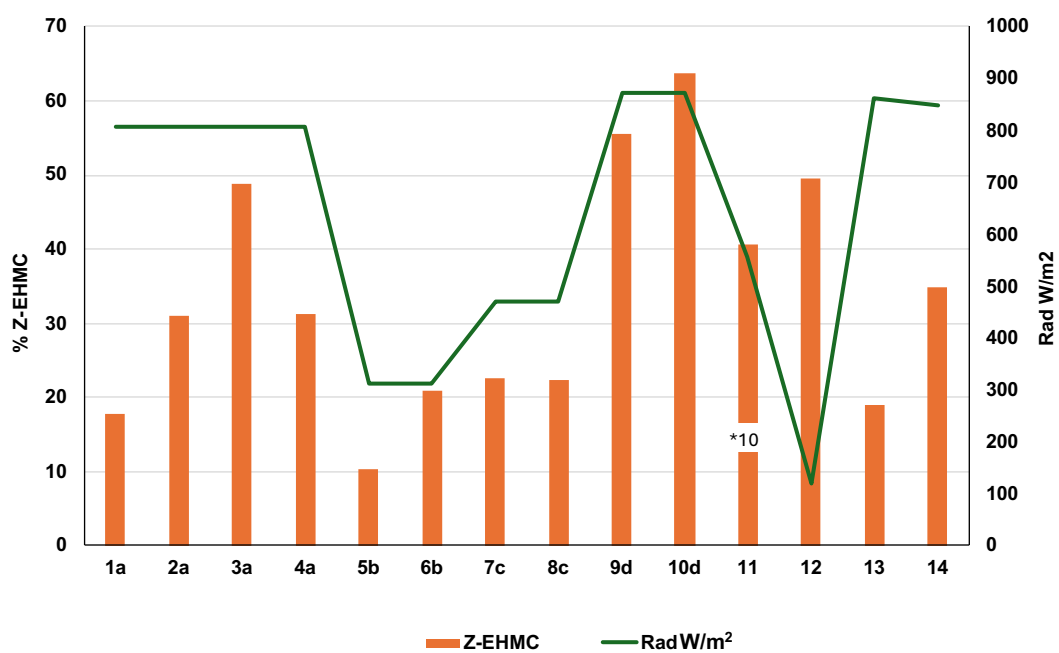
<b>Cosmetic product</b>	<b>Product Market Name</b>	<b>Composition</b>
Hair Oil	Aceite de Argán Capilar (Hair Oil)	Cyclopentasiloxane, Dimethicone, Phenyl Trimethicone, Isopropyl Palmitate, Parfum, Amodimethicone, <b>Ethylhexyl Methoxycinnamate</b> , Prunus Amygdalus Dulcis Oil, Argania Spinosa Kernel Oil, Rosa Moschata Seed Oil, Benzophenone-3, BHT, Benzyl Benzoate, Tocopheryl Acetate, Linalool, CI 47000, CI 26100
Lip Balm	Protector Labial SPF 25 Frambuesa (Lip Balm)	Microcrystalline Wax, Octyldodecanol, Ricinus Communis Seed Oil, Polydecene, <b>Ethylhexyl Methoxycinnamate</b> , Butyl Methoxydibenzoylmethane, Cera Alba, Octocrylene, Myristyl Myristate, Cetyl Palmitate, Butyl Methoxydibenzoylmethane, Cetyl Alcohol, Butyrospermum Parkii Butter, Aloe Barbadensis Leaf Extract, 12-Hexanediol, Caprylyl Glycol, Panthenol, Tocopheryl Acetate, BHT, Parfum, Linalool, Disodium EDTA.
Sunscreen	Sun Facial Cream SPF 50+ Anti-Age (Sunscreen)	Aqua, <b>Ethylhexyl Methoxycinnamate</b> , Cyclopentasiloxane, Dimethicone, Ethylhexyl Salicylate, Polymethyl Methacrylate, Butyl Ethylbenzoylmethane, Glycerin, Potassium Cetyl Phosphate, Silica, Titanium Dioxide, Cetyl Alcohol, Octocrylene, PPG-15 Stearyl Ether, Vitis Vinifera Fruit Meristem Cell Culture, Squalane, Bis-PEG-18 Methyl Ether Dimethyl Silane, Glyceryl Stearate, Hydrogenated Vegetable Glycerides Citrate, Beta-Sitosterol, Polyglyceryl-6 Dioleate, PEG-100 Stearate, Propylene Glycol, Tocopheryl Acetate, Ascorbyl Palmitate, Lecithin, Xanthan Gum, Sodium Hydroxide, Citric Acid, Sodium Benzoate, Potassium Sorbate, Parfum, Caprylyl Glycol, Levulinic Acid, Sodium Levulinate, Hexyl Cinnamal, Linalool, Citronellol, Geraniol, Coumarin, Alpha-Isomethyl Ionone.



**Fig. S1.** Photoinduced isomerisation of *E*-EHMC (trans) to *Z*-EHMC (cis) after 10 min of UV lamp irradiation.



**Fig. S2.** HPLC-DAD chromatogram for the EHMC and OCR standards.



**Fig. S3.** Z-EHMC (%) compared with solar radiation power in fourteen real Adriatic seawater samples.