

Table S1: Sensitivity factors of the calibrants.

Compound	Ions	IRL, cps/ppb	FIN, cps/ppb
Methanol	CH3OHH+	0.8 ± 0.6	2.3 ± 0.3
Acetonitrile	C2H3NH+	826.3 ± 200.7	1093.4 ± 90.6
Acetaldehyde	C2H4OH+	913.8 ± 107.6	1049.5 ± 39.6
Acetone	C3H6OH+	2864.3 ± 405.6	3556.6 ± 226.7
Isoprene	C5H9+	968.6 ± 118.3	1119.5 ± 50.8
MVK	C4H6OH+	2442.1 ± 467.3	3183.0 ± 235.8
MEK	C4H8OH+	2340.7 ± 389.1	2888.4 ± 254.7
Benzene	C6H7+	800.6 ± 133.2	786.1 ± 64.1
Toluene	C7H9+	1498.7 ± 215.9	1760.3 ± 86.1
Hexanal	C6H12OH+	84.4 ± 31.6	124.8 ± 10.7
m,p-xylene	C8H11+	1728.9 ± 412.3	2450.3 ± 129.0
1,3,5-trimethylbenzene	C9H13+	2070.1 ± 536.2	2983.1 ± 164.9
Naphthalene	C10H9+	817.9 ± 993.0	1990.1 ± 308.5
a-pinene	C10H17+	1015.8 ± 119.1	1191.8 ± 54.1
1,2,4-trichlorobenzene	C6H3Cl3H+	35.3 ± 44.4	88.3 ± 13.6
D3	C6H18O3Si3H+	1947.1 ± 275.4	2332.6 ± 120.3
D4	C8H24O4Si4H+	1782.7 ± 276.9	2196.4 ± 122.7

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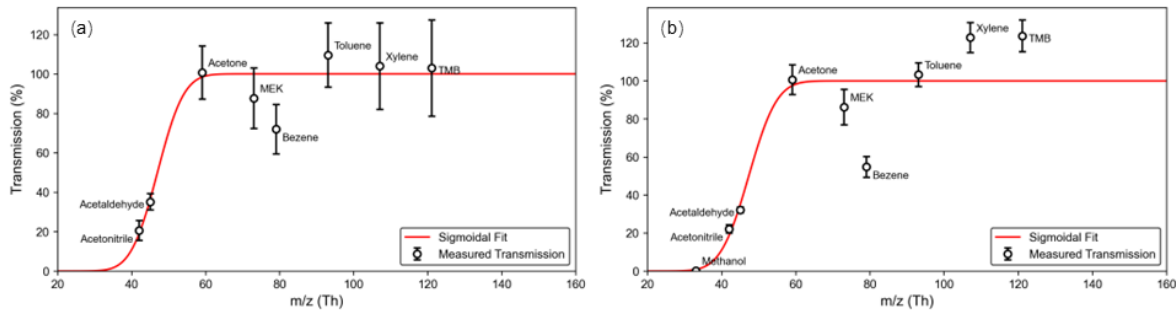


Figure S1: Mass transmission curves of the Vocus PTR-TOF during the experiments at (a) MHD (Ireland) and (b) TZS (Finland).

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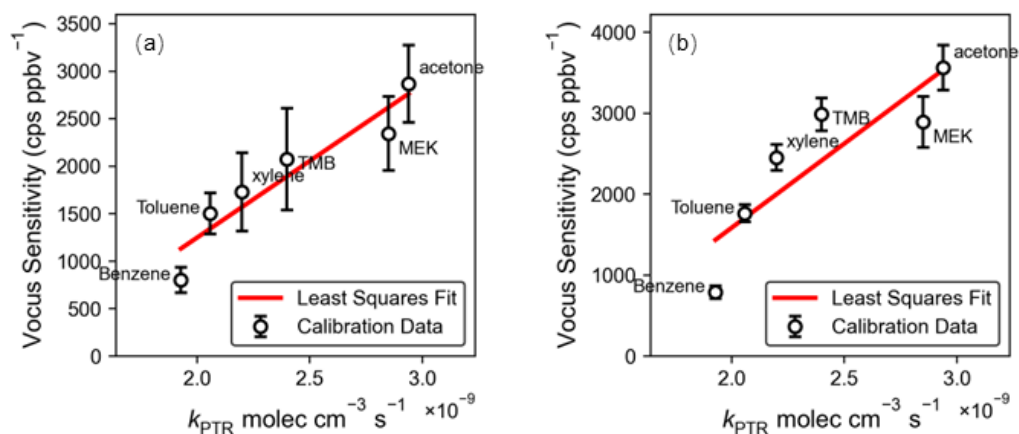


Figure S2: Sensitivity of Vocus PTR-TOF as a function of analyte proton transfer reaction rate constants, k_{PTR} during the experiments at (a) MHD (Ireland) and (b) TZS (Finland).

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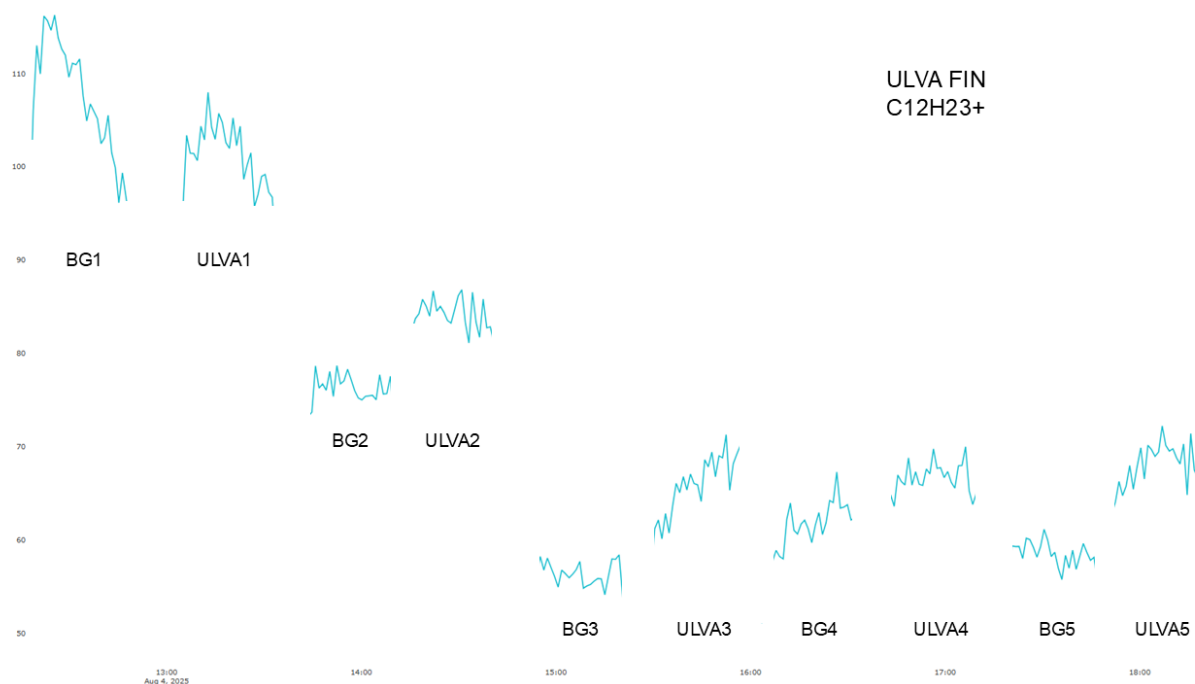


Figure S3: Highlighting Vocus PTR-TOF emission curves (backgrounds (BG) and macrophyte addition) of one compound during a measurement day in Finland. The first background never stabilized during the sampling period (30 min), which affected the subsequent macrophyte measurement, and replicate #1 was therefore marked as NA in the dataset for this compound. It is important to notice that background levels vary significantly between replicates.

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Tables S2 & S3 are included in the provided xlsx-file.

Table S2; Average quantified emission rates (ng/g DW/h) $\pm$ SD (n) for each detected compound.

Table S3; Potential identities of the detected compounds based on the GLOVOCS-database (Yáñez-Serrano et al., 2021; <https://doi.org/10.1016/j.atmosenv.2020.117929>).

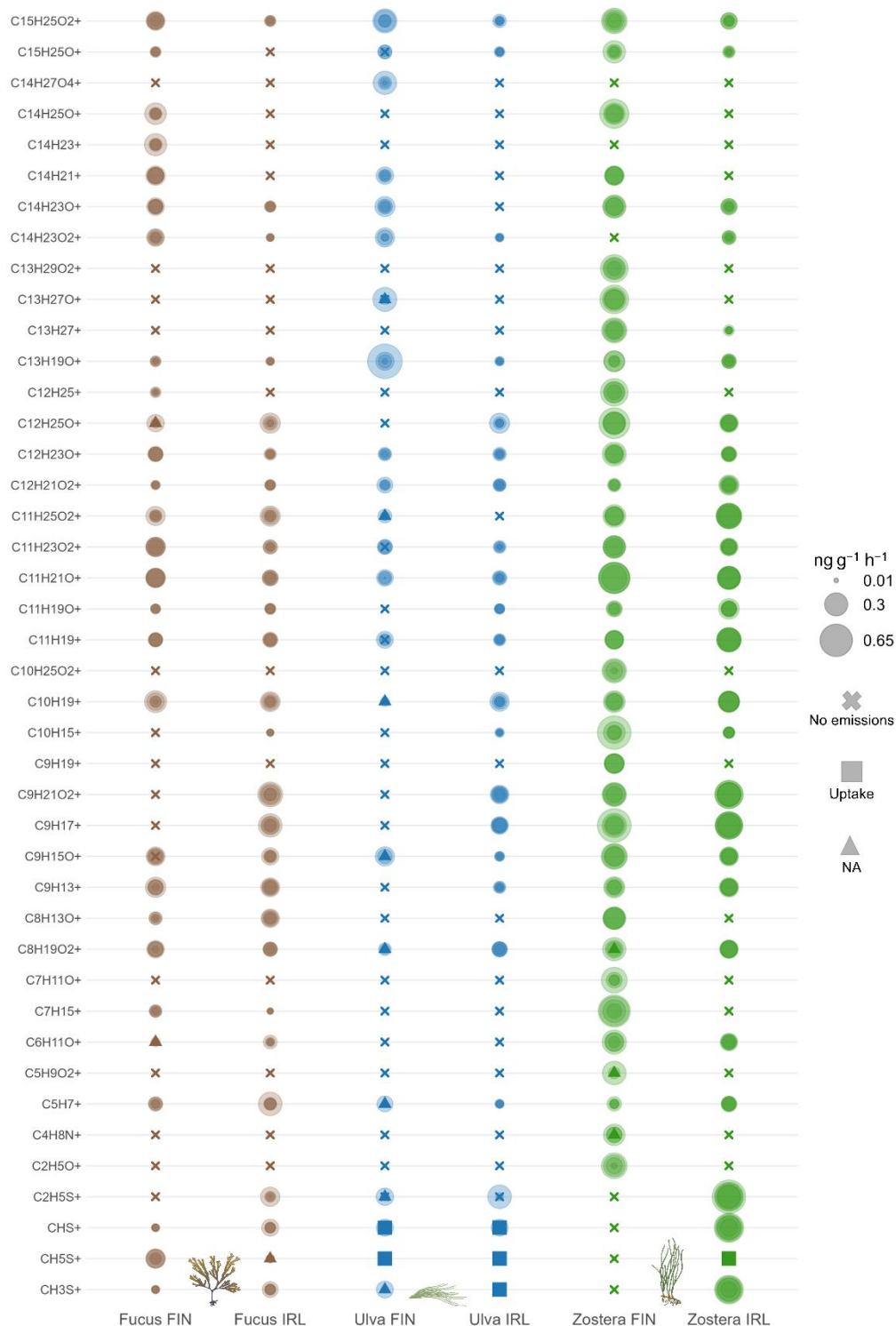


Figure S4: The quartile of emitted compounds with the second highest emission rates measured in this study. Each measured datapoint is included in the figure and shown as an individual circle (several replicates per treatment overlapping). Unavailable datapoints (NA), datapoints that showed uptake and measurements where no emissions were detected are marked in the figure with their corresponding symbols (see legend). Macrophyte images from Integration and Application Network (IAN), University of Maryland Center for Environmental Science (<https://ian.umces.edu/>).

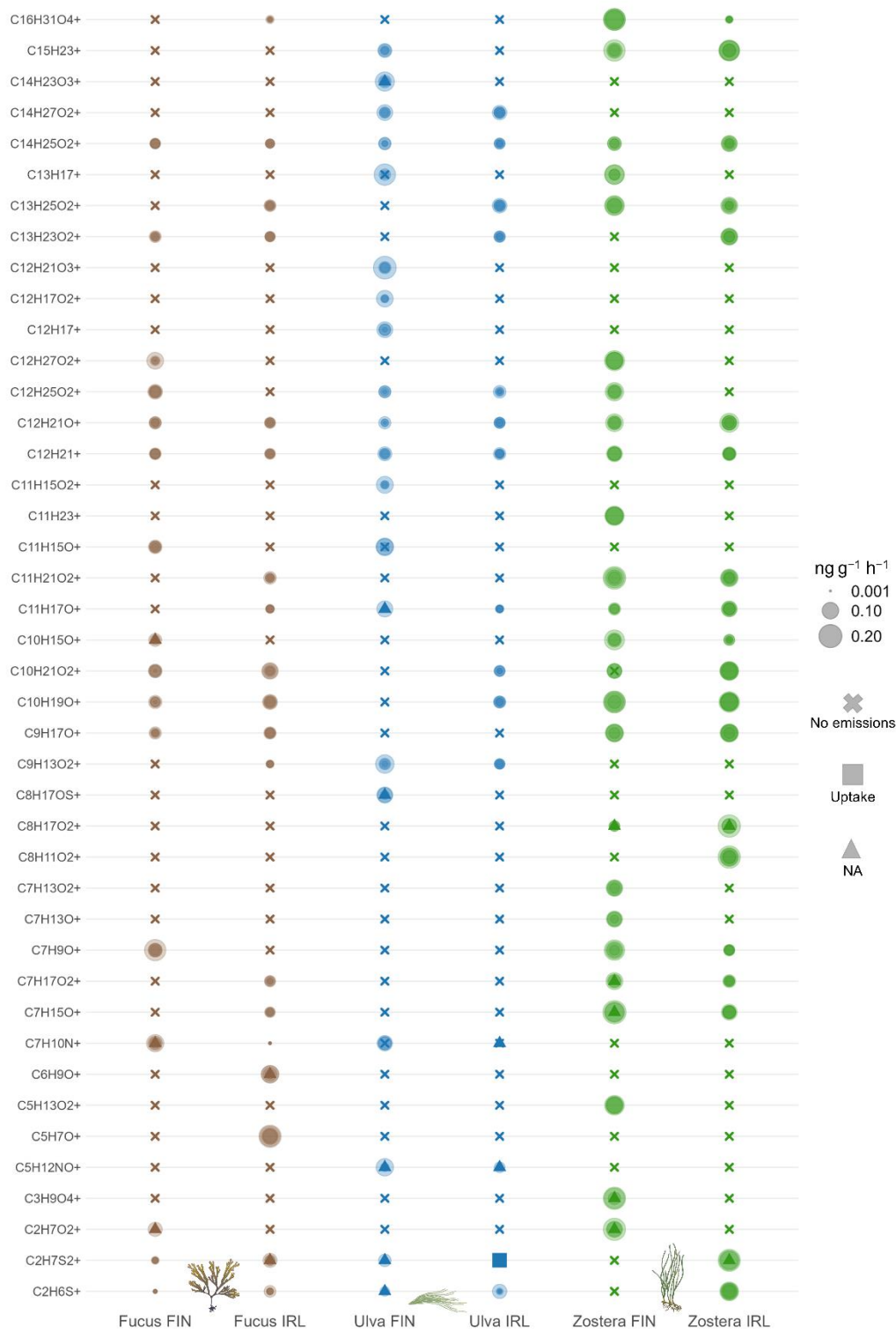


Figure S5: The quartile of emitted compounds with the third highest emission rates measured in this study. Each measured datapoint is included in the figure and shown as an individual circle (several replicates per treatment overlapping). Unavailable datapoints (NA), datapoints that showed uptake and measurements where no emissions were detected are marked in the figure with their corresponding symbols (see legend). Macrophyte images from Integration and Application Network (IAN), University of Maryland Center for Environmental Science (<https://ian.umces.edu/>).

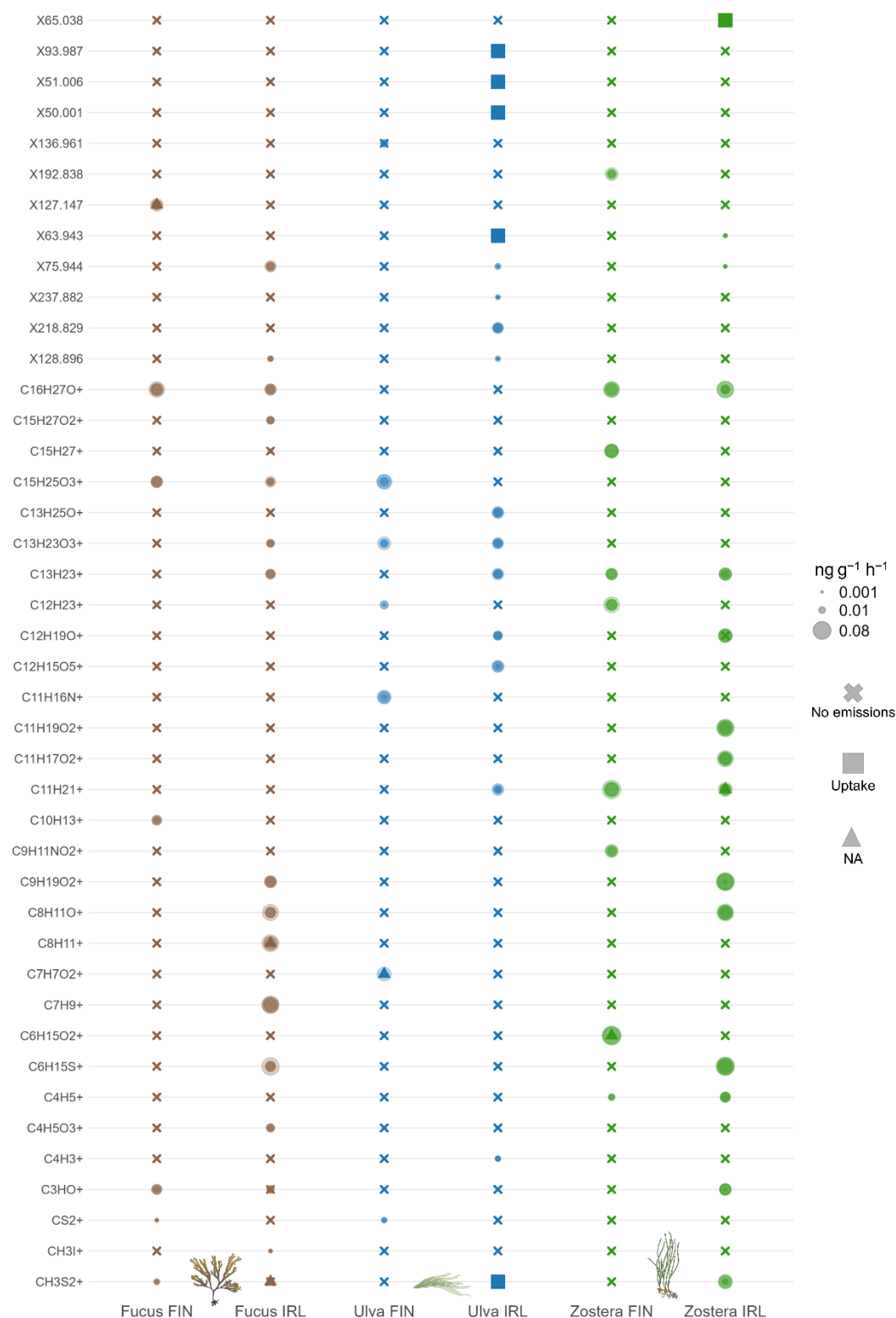


Figure S6: The quartile of emitted compounds with the lowest emission rates measured in this study. Each measured datapoint is included in the figure and shown as an individual circle (several replicates per treatment overlapping). Unavailable datapoints (NA), datapoints that showed uptake and measurements where no emissions were detected are marked in the figure with their corresponding symbols (see legend). Macrophyte images from Integration and Application Network (IAN), University of Maryland Center for Environmental Science (<https://ian.umces.edu/>).