

## Electronic Supporting Information

for

# CHEMICAL MODIFICATION OF SELENIUM-CONTAINING AMINO ACIDS CAUSED BY NON-THERMAL DIELECTRIC-BARRIER DISCHARGE ATMOSPHERIC-PRESSURE PLASMA

by

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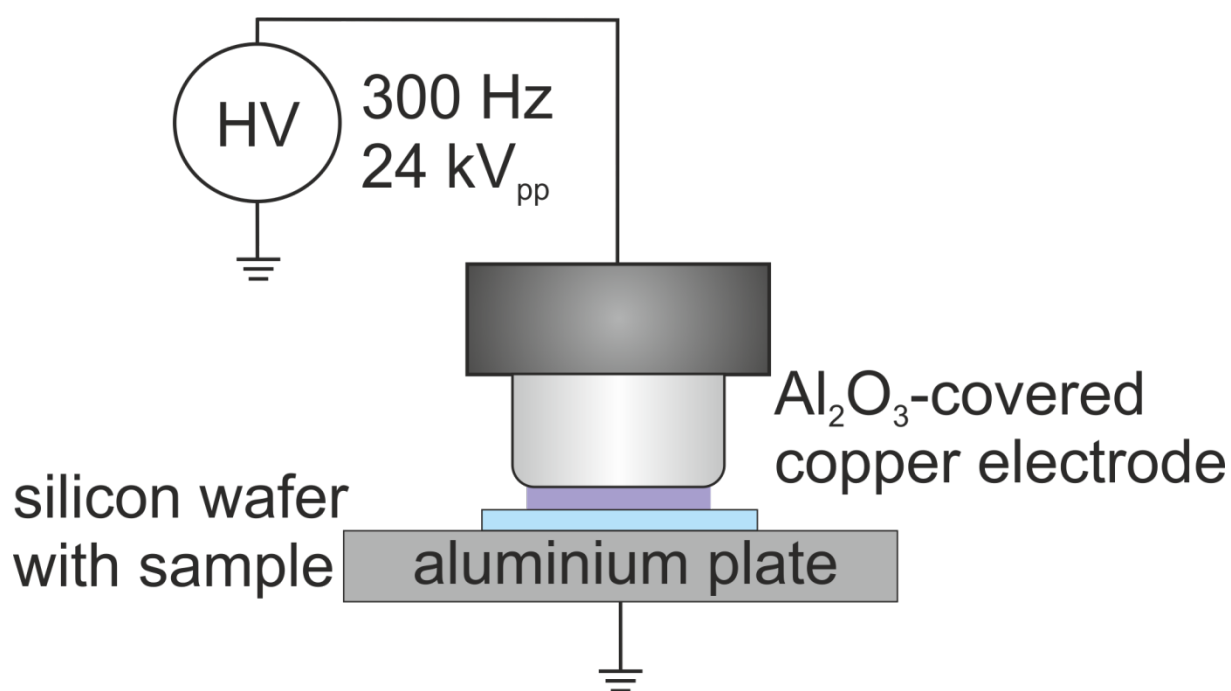
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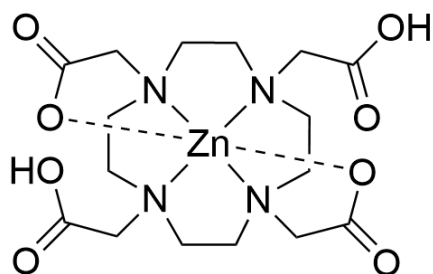
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## Contents

1. The scheme of the plasma source	p.S2
2. Characterisation of zinc(II) complex	p.S2-S4
3. Influence of plasma on zinc(II) complex	p.S4-S6
4. Stability experiments of substrates	p.S7-S8
5. Influence of plasma on substrates in the presence of iron complexes	p.S8-S9
6. Influence of plasma on GSSG in the presence of zinc complex	p.S10-S12
7. FT-IR data of substrates after cold plasma treatment	p.S13-S15
8. Literature	p.S16



**Figure S1.** The scheme of the plasma source.<sup>1,2,3</sup>



Exact Mass: 466.10  
Molecular Weight: 467.78

**Figure S2.** Structure of complex C.

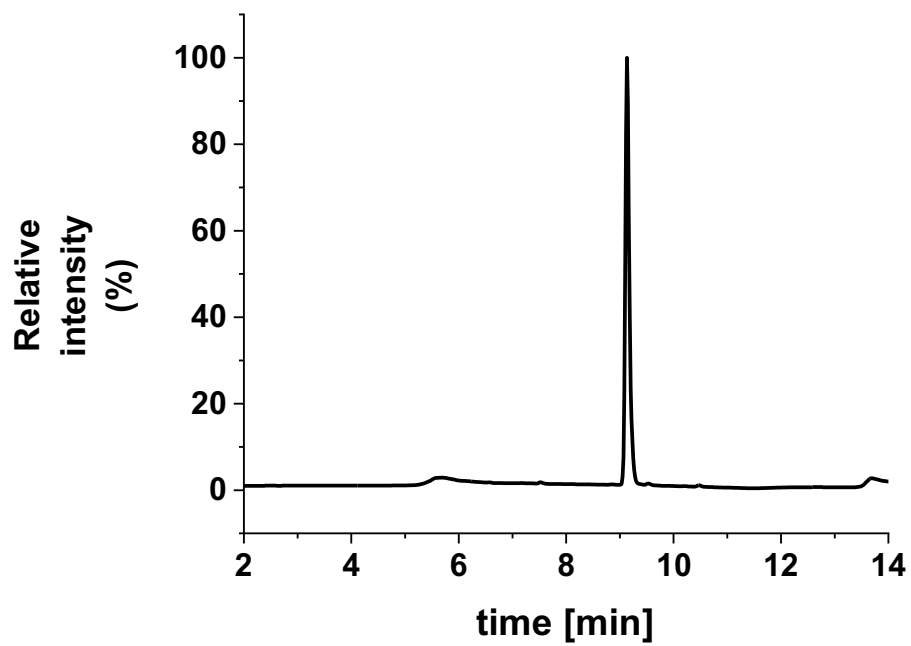


Figure S3. HPLC chromatogram of complex C.

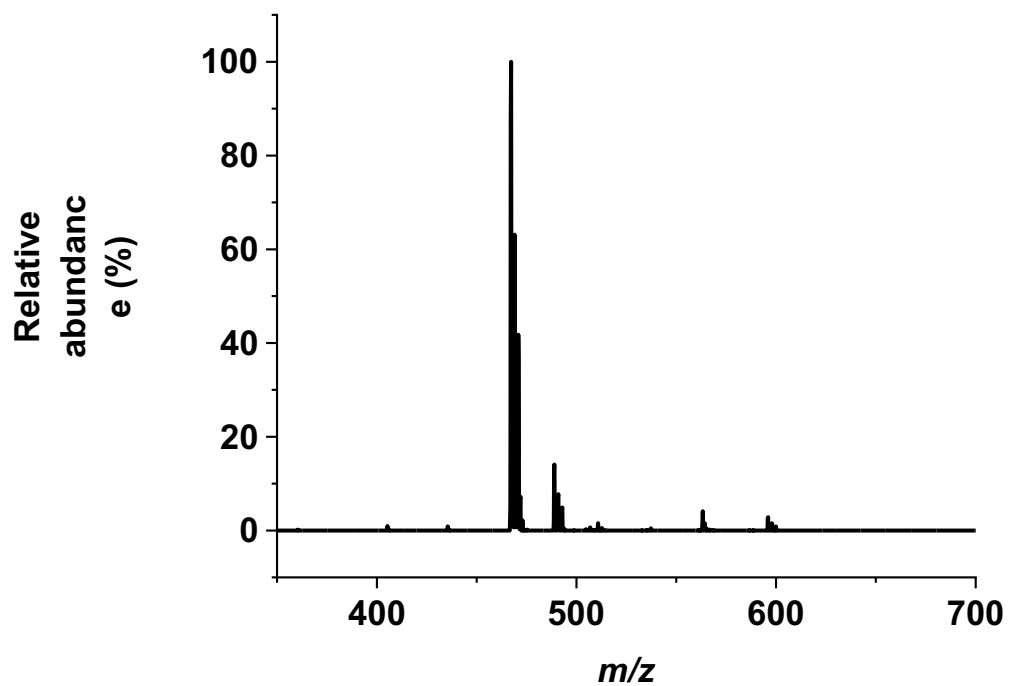


Figure S4. ESI-MS spectrum (positive mode) of complex C.

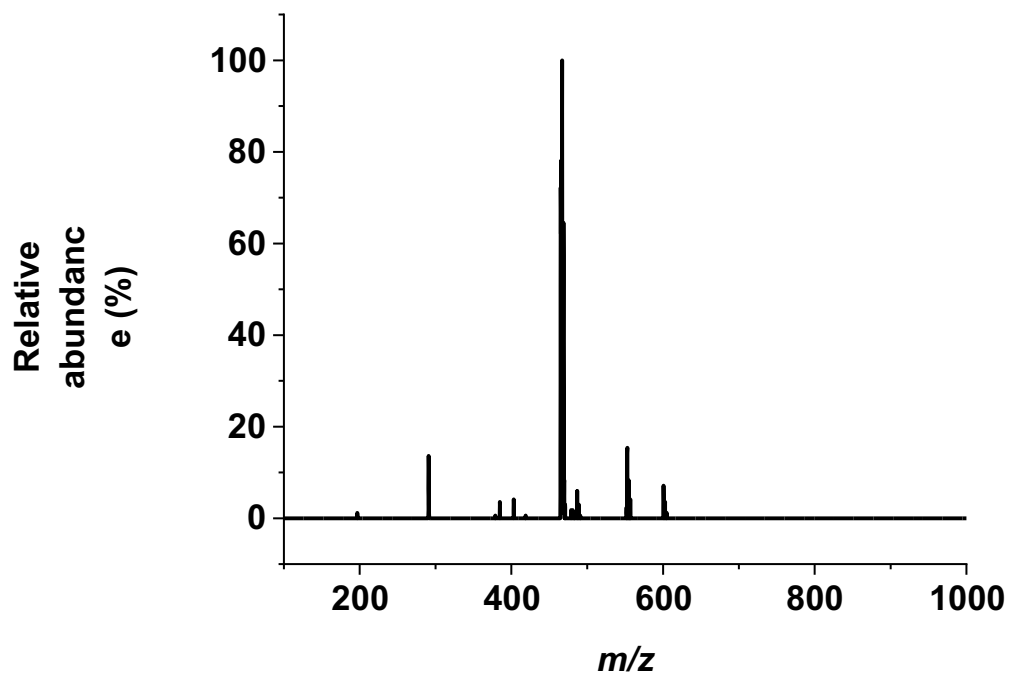


Figure S5. ESI-MS spectrum (negative mode) of complex C.

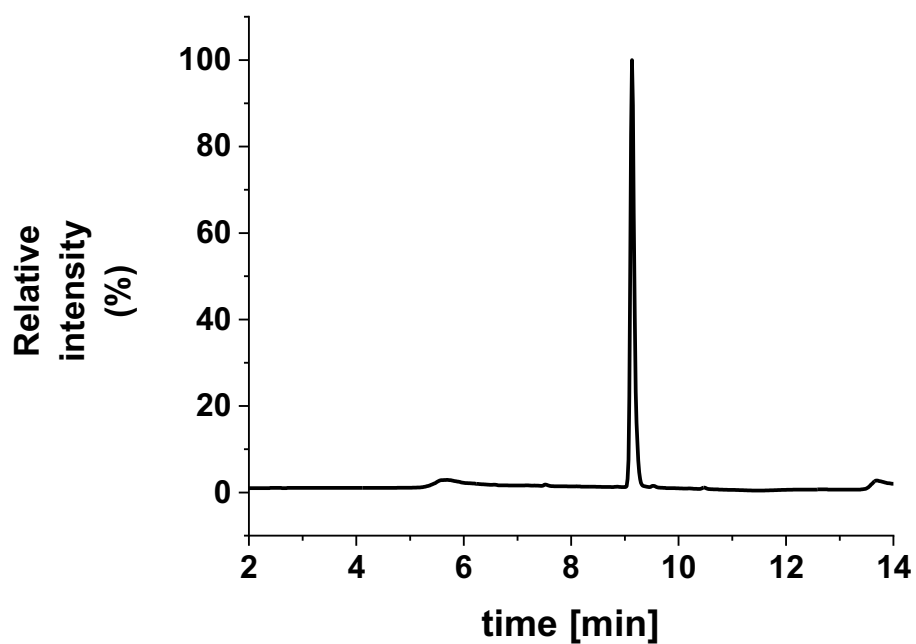
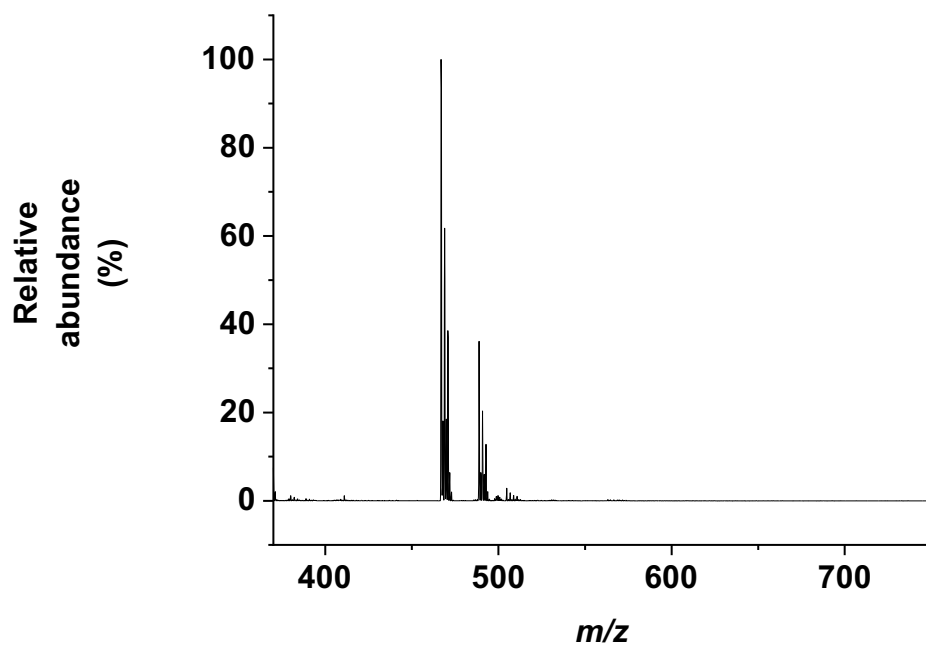
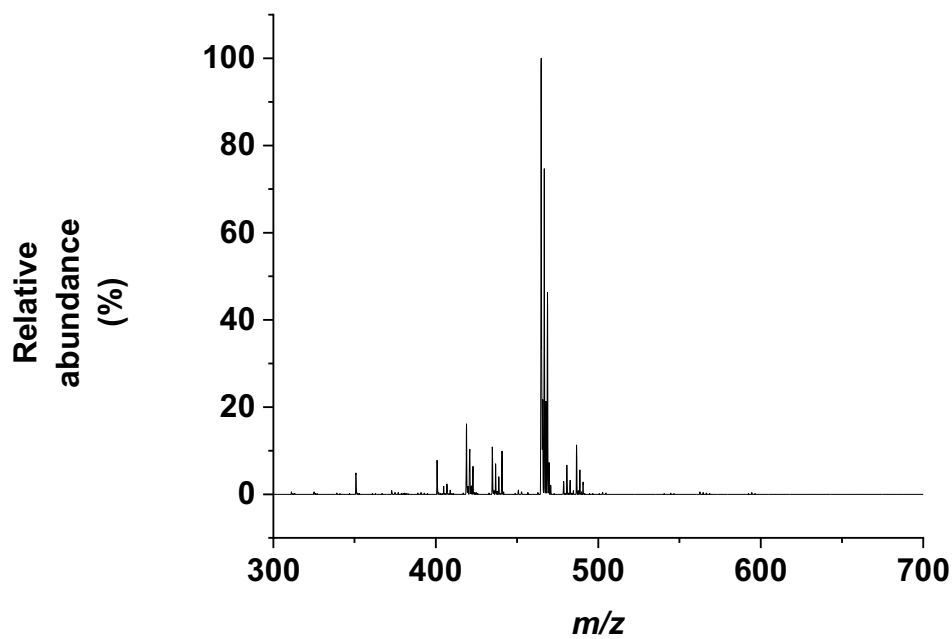


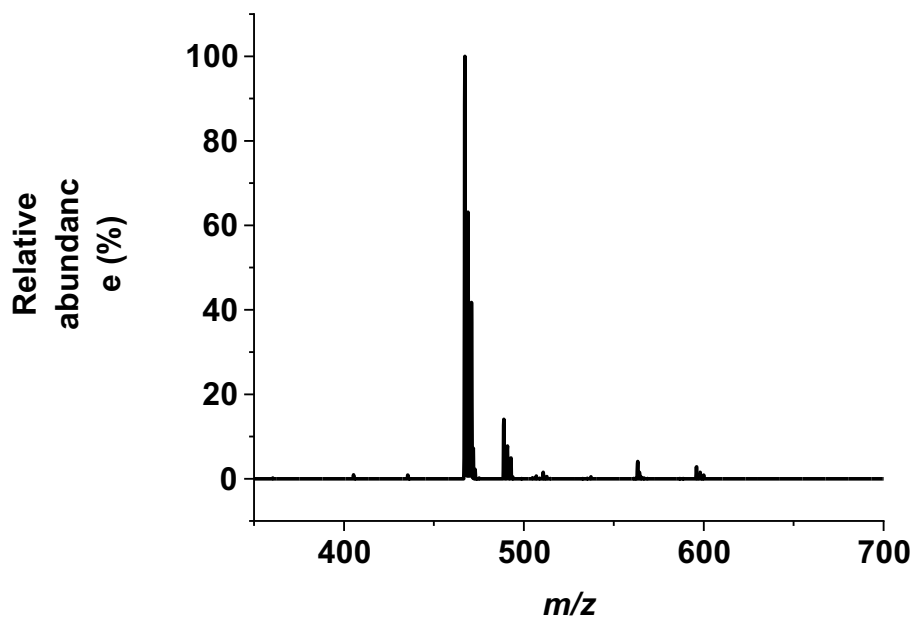
Figure S6. HPLC chromatogram of complex C after 2 min of cold plasma treatment.



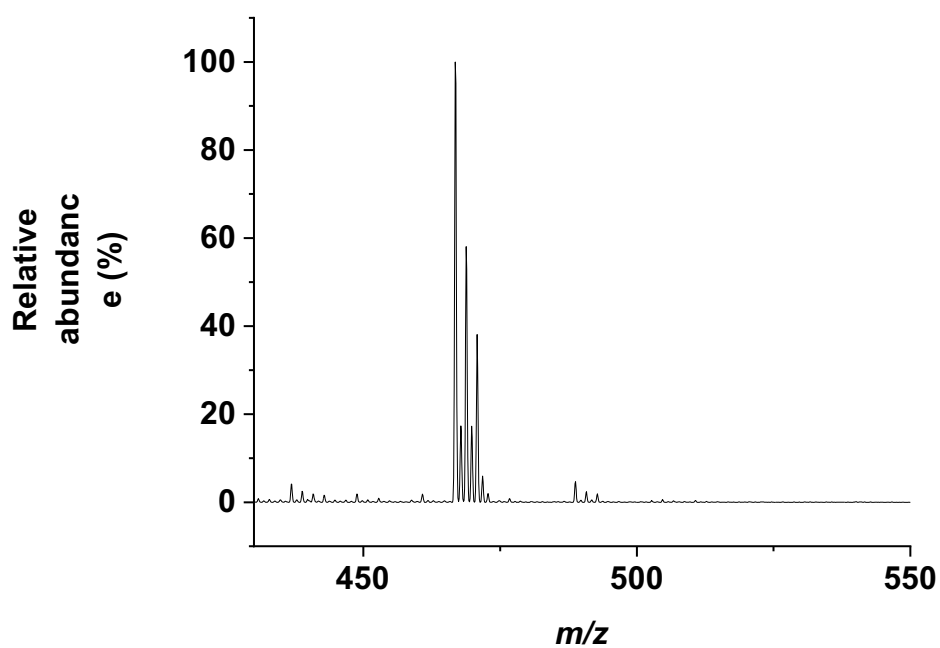
**Figure S7.** ESI-MS spectrum (positive mode) of complex **C** after 2 min of cold plasma treatment



**Figure S8.** ESI-MS spectrum (negative mode) of complex **C** after 2 min of cold plasma treatment.



**Figure S9.** ESI-MS spectrum (positive mode) of complex **C** after 20 min of cold plasma treatment.



**Figure S10.** ESI-MS spectrum (negative mode) of complex **C** after 20 min of cold plasma treatment.

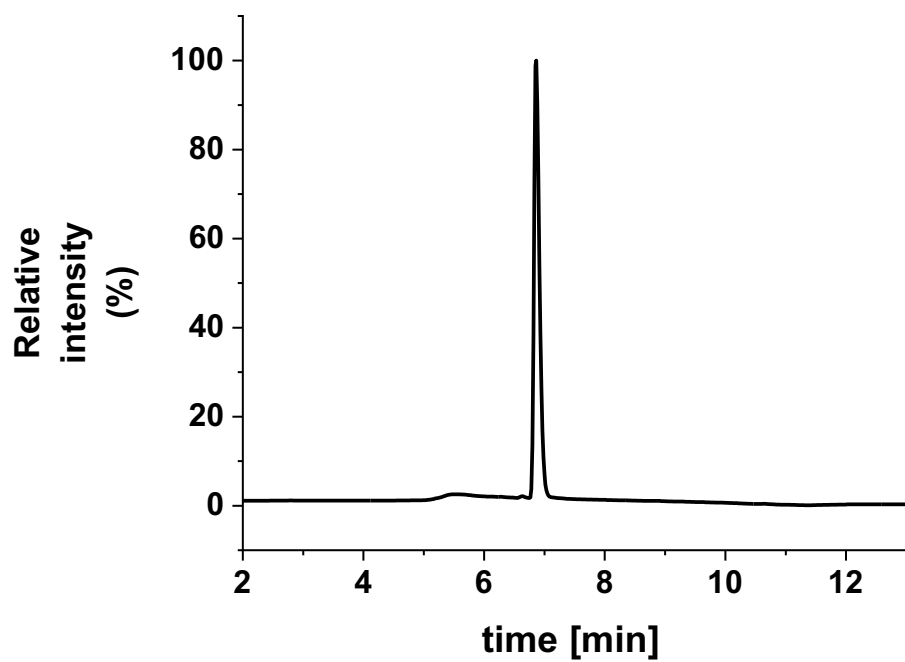


Figure S11. HPLC chromatogram of compound 1 after 5 min of stability experiments.

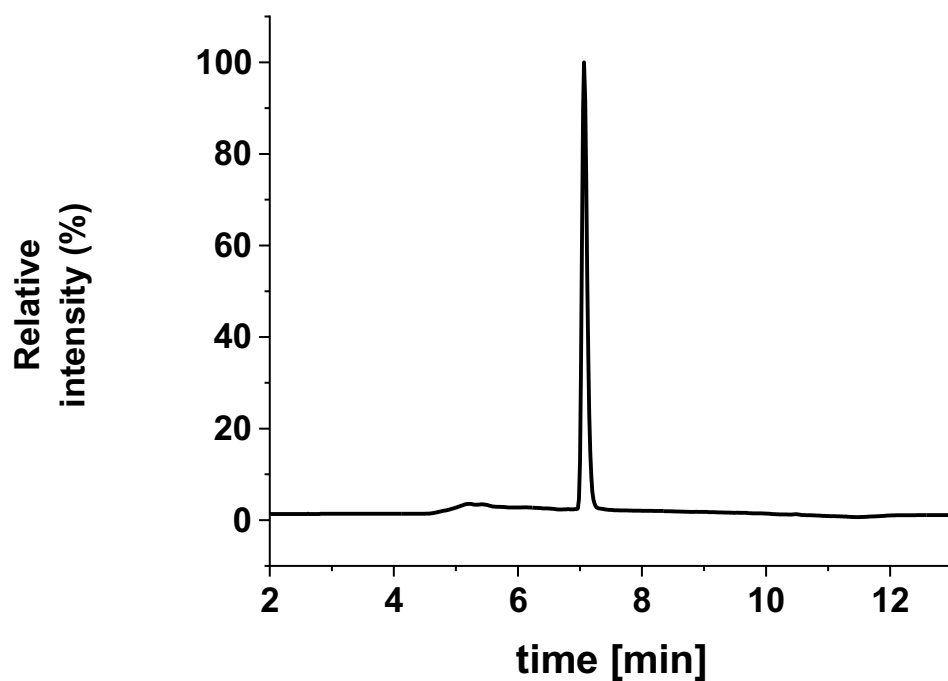


Figure S12. HPLC chromatogram of compound 2 after 5 min of stability experiments.

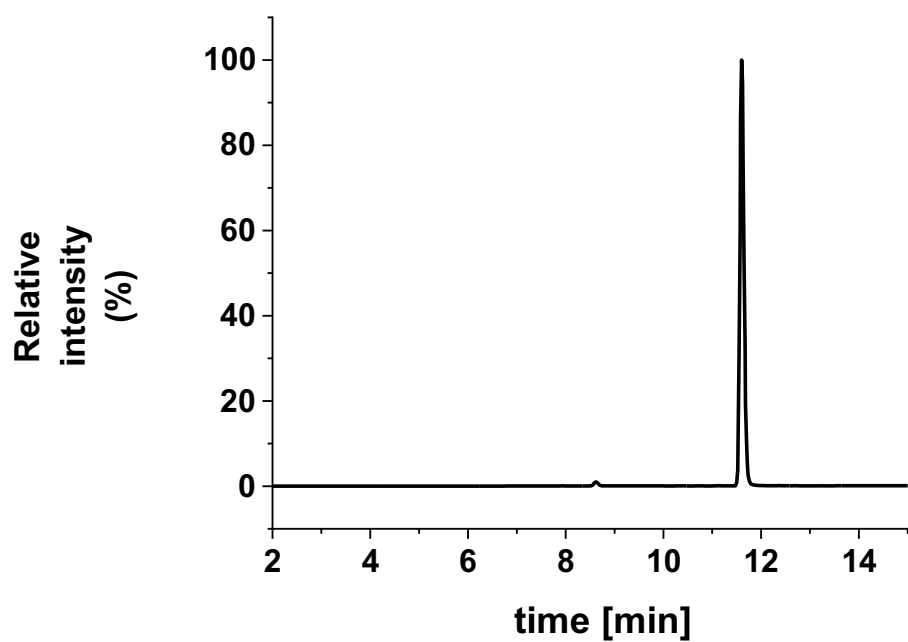


Figure S13. HPLC chromatogram of compound **3** after 5 min of stability experiments.

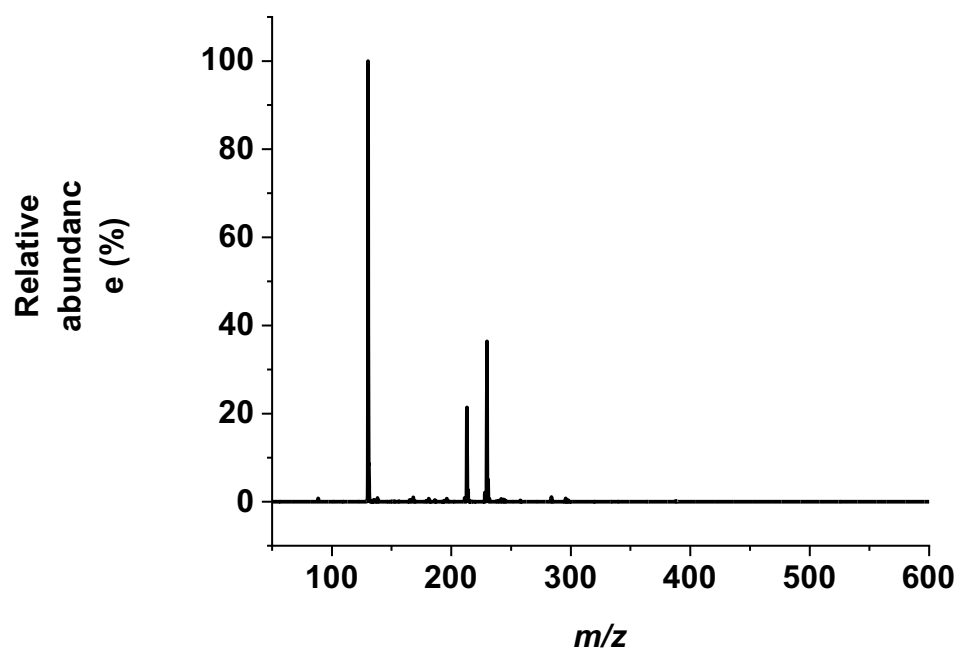
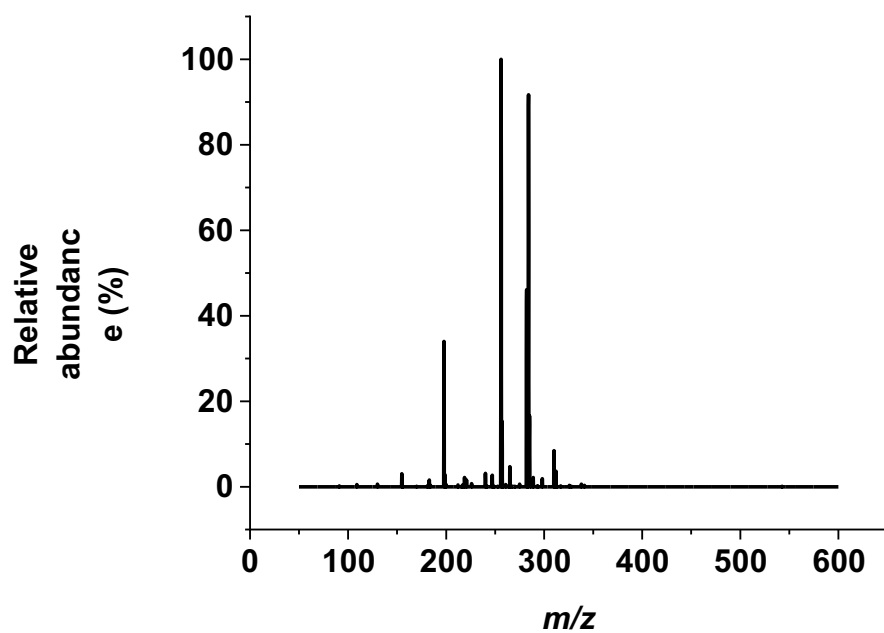
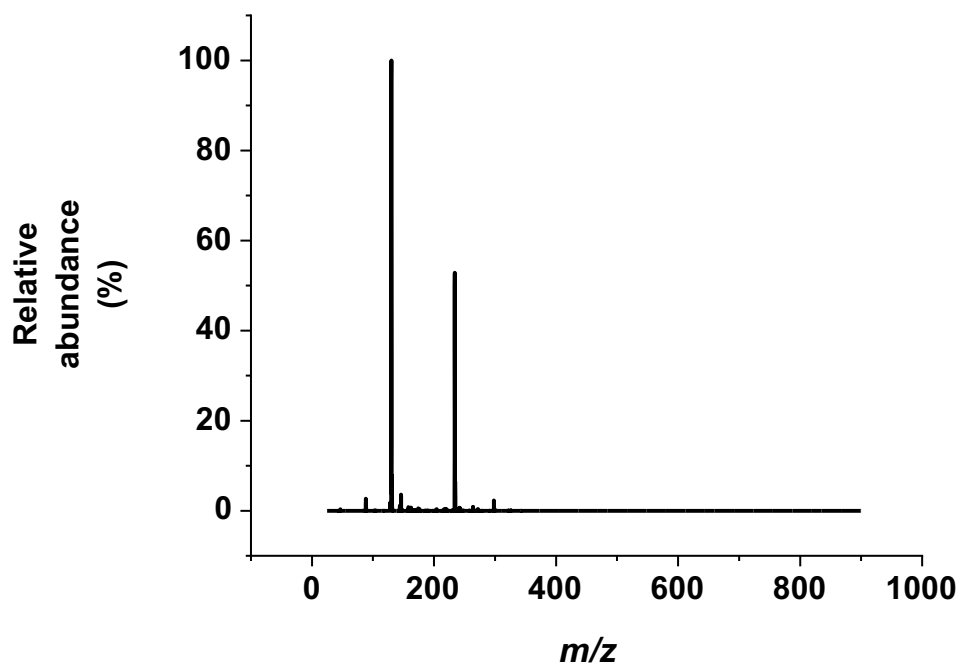


Figure S14. ESI-MS spectrum (negative mode) of compound **1** in the presence of iron(III) after 1 min of cold plasma treatment.





**Figure S15.** ESI-MS spectrum (negative mode) of compound **3** alone after 3 min of cold plasma treatment.



**Figure S16.** ESI-MS spectrum (negative mode) of compound **3** in the presence of iron(III) after 3 min of cold plasma treatment.

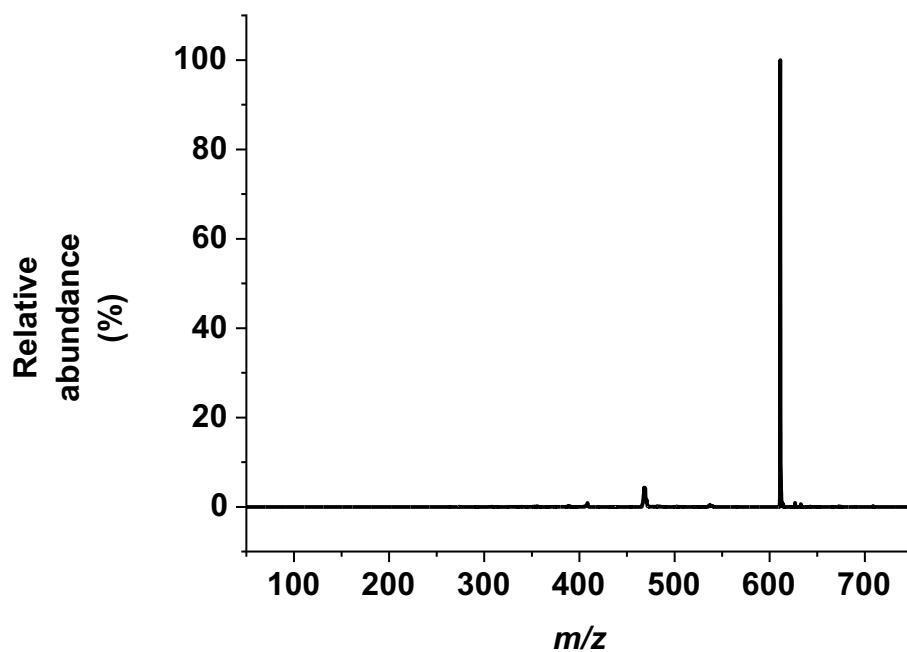


Figure S17. ESI-MS spectrum (negative mode) of GSSG.

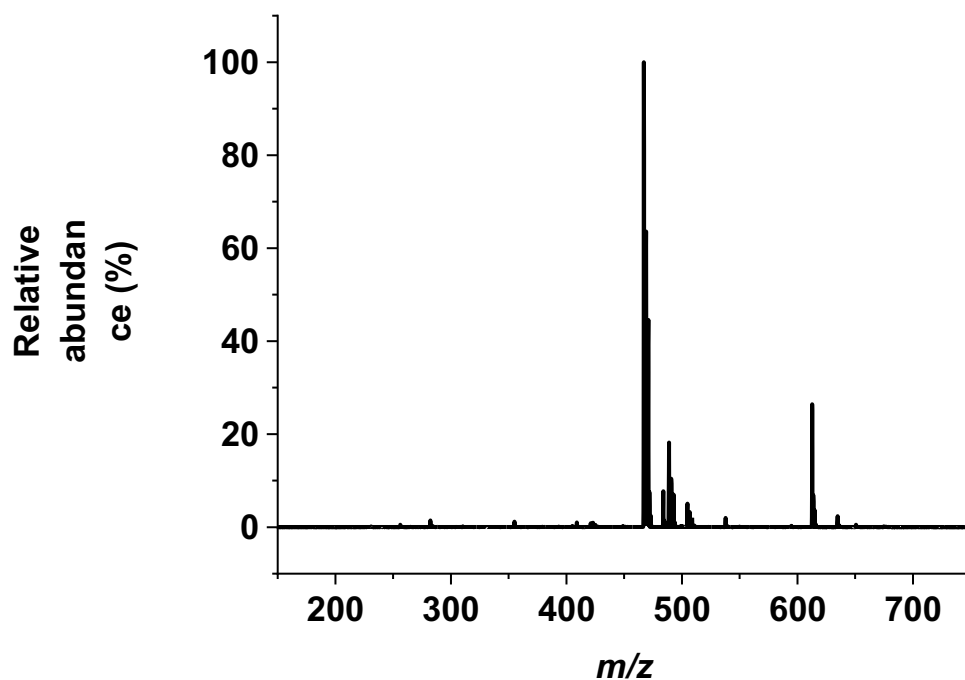
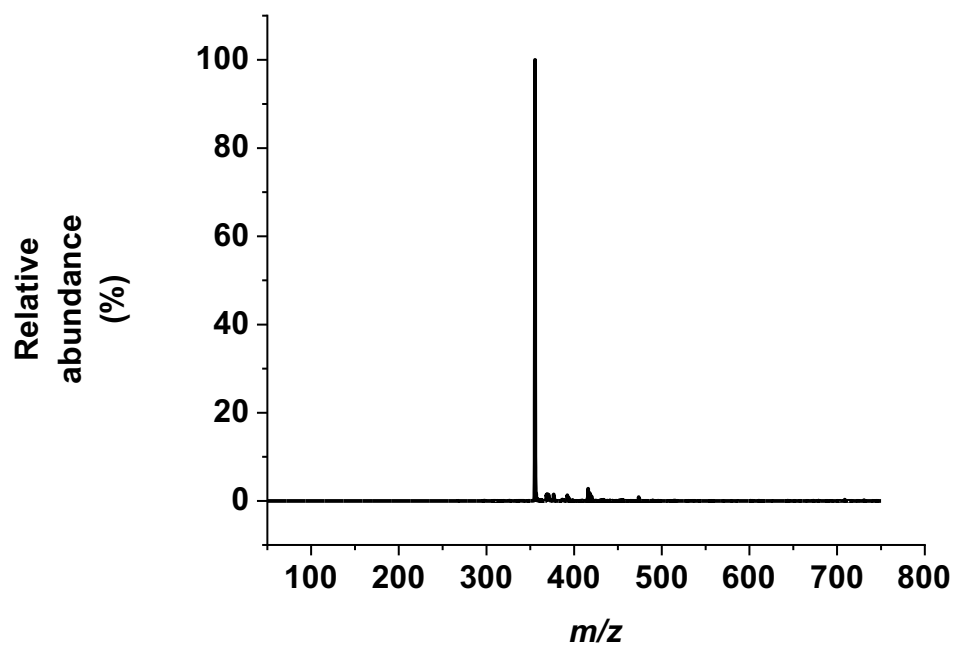
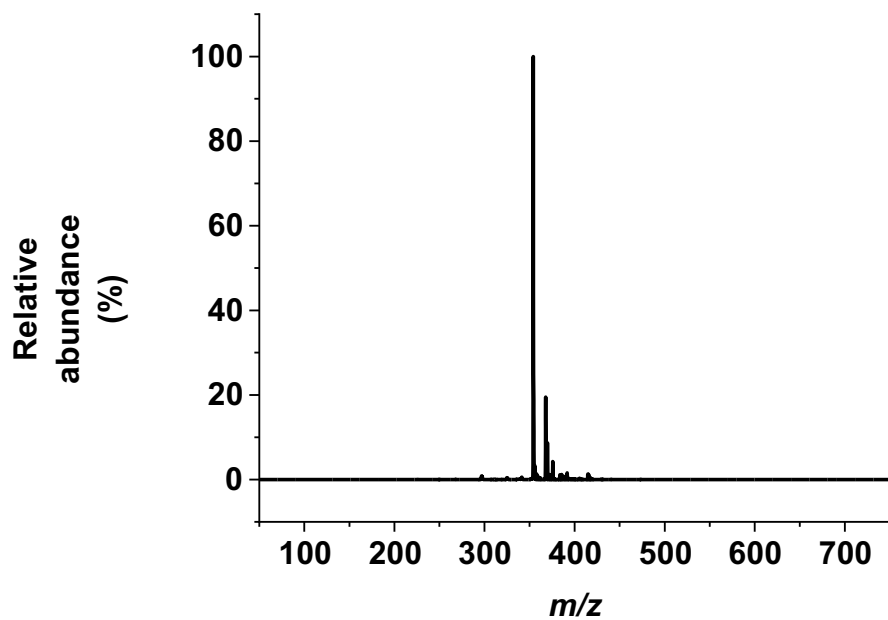


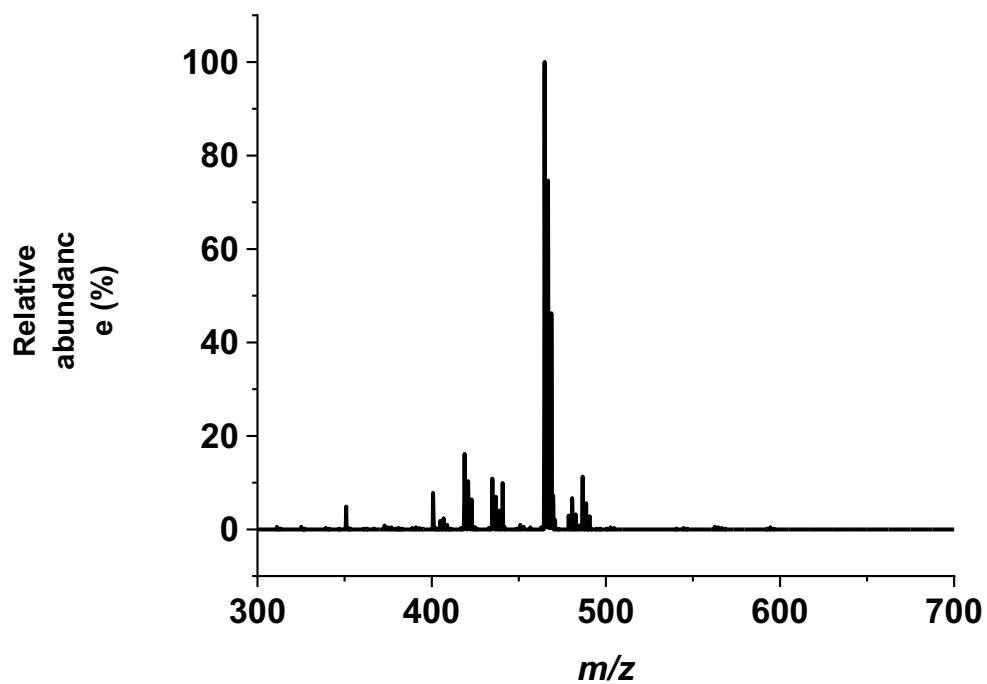
Figure S18. ESI-MS spectrum (positive mode) of GSSG in the presence of zinc(II) complex before cold plasma treatment.



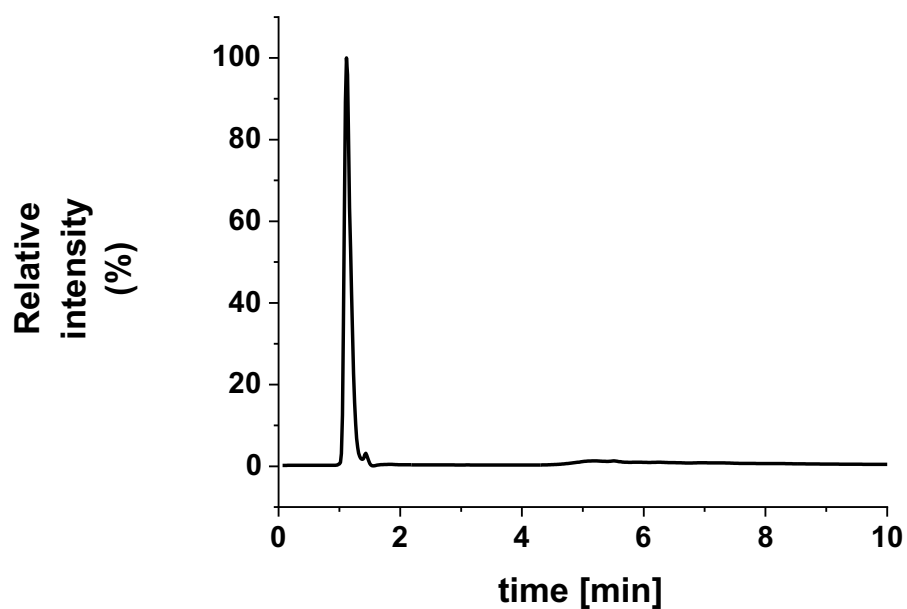
**Figure S19.** ESI-MS spectrum (negative mode) of GSSG in the presence of zinc(II) complex after 1 min of cold plasma treatment.



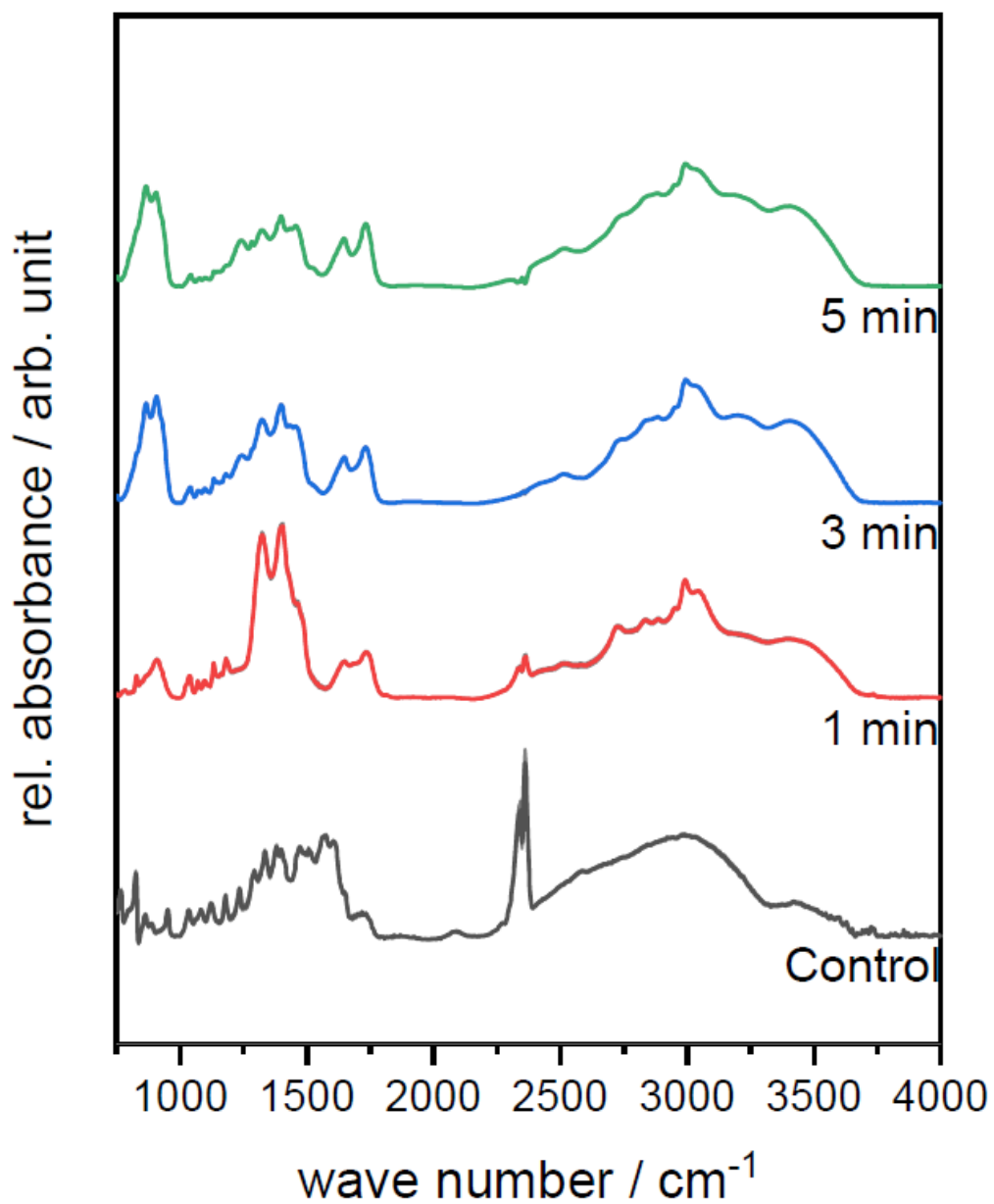
**Figure S20.** ESI-MS spectrum (negative mode) of GSSG in the presence of zinc(II) complex after 3 min of cold plasma treatment.



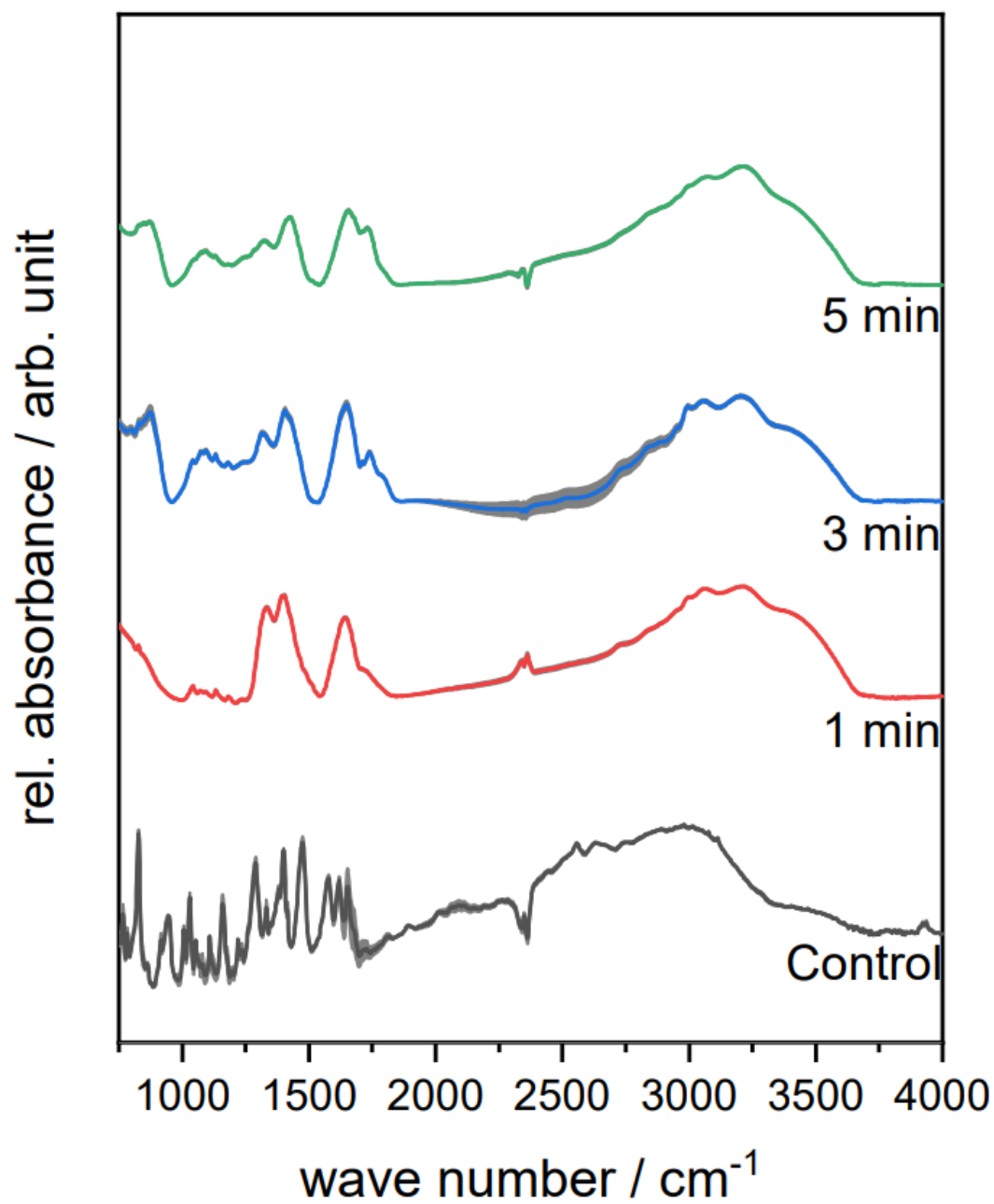
**Figure S21.** ESI-MS spectrum (negative mode) of GSSG in the presence of zinc(II) complex after 5 min of cold plasma treatment.



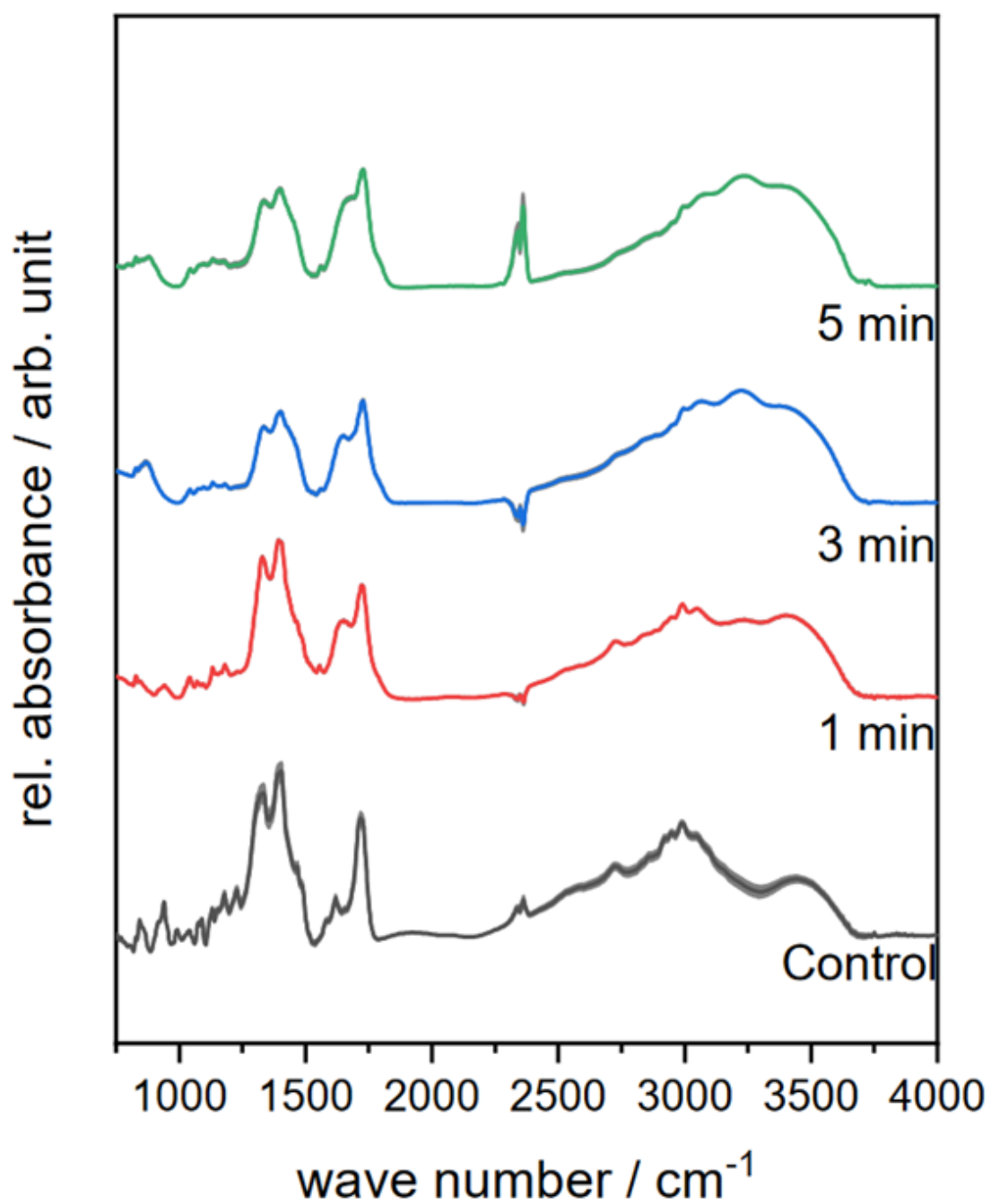
**Figure S22.** HPLC chromatogram of GSSG in the presence of zinc(II) complex after 5 min of cold plasma treatment.



**Figure S23.** Mean FTIR-spectra of plasma-treated compound **3** in the range of 700-4000 cm<sup>-1</sup> as a function of different treatment times. Standard deviation of the mean is shown as grey area at each graph.



**Figure S24.** Mean FTIR-spectra of plasma-treated compound **3** in the presence of complex **A** in the range of 700-4000  $\text{cm}^{-1}$  as a function of different treatment times.



**Figure S25.** Mean FTIR-spectra of plasma-treated compound **3** in the presence of complex **B** in the range of 700-4000 cm<sup>-1</sup> as a function of different treatment times.

## References

1. Kogelheide, F.; Kartaschew, K.; Strack, M.; Baldus, S.; Metzler-Nolte, N.; Havenith, M.; Awakowicz, P.; Stapelmann, K.; Lackmann, J.-W., FTIR spectroscopy of cysteine as a ready-to-use method for the investigation of plasma-induced chemical modifications of macromolecules. *Journal of Physics D: Applied Physics* **2016**, *49* (8), 084004.
2. Kogelheide, F.; Offerhaus, B.; Bibinov, N.; Krajinski, P.; Schücke, L.; Schulze, J.; Stapelmann, K.; Awakowicz, P., Characterisation of volume and surface dielectric barrier discharges in N<sub>2</sub>–O<sub>2</sub> mixtures using optical emission spectroscopy. *Plasma Processes and Polymers* **2019**, e1900126.
3. Baldus, S.; Schroeder, D.; Bibinov, N.; Schulz-von der Gathen, V.; Awakowicz, P., Atomic oxygen dynamics in an air dielectric barrier discharge: a combined diagnostic and modeling approach. *Journal of Physics D: Applied Physics* **2015**, *48* (27), 275203.