

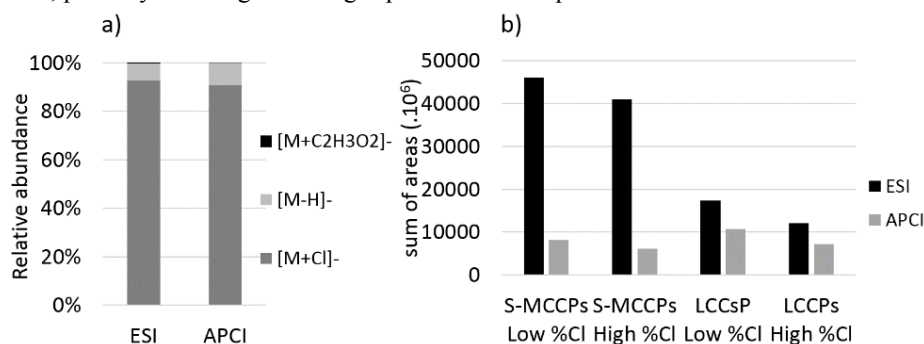






#### Performance of APCI and ESI sources for $[M+Cl]^-$ adducts monitoring

The APCI-Cl-enhanced strategy was optimized with the same procedure as for ESI-Cl-enhanced. Then, the sensitivity and selectivity of both sources were studied for the analysis of CPs. For both methods,  $[M+Cl]^-$  adducts were ionized preferentially in comparison to any other possible ions, proving the efficiency of DCM addition in post-column (Fig. 4a). Although ionization competition known to occur in ESI sources should limit detection sensitivity, here ESI appeared significantly more sensitive for both the standards and the fortified matrix (Fig. 4b). This could possibly be explained by the corresponding total ion current, which was not as stable in APCI as in ESI, possibly meaning that the gas phase was not optimal in APCI.



**Figure 4.** Comparison of ESI and APCI performances when monitoring  $[M+Cl]^-$  adducts on a mix of technical mixtures: a) relative abundance of adduct ions b) sensitivity toward SCCPs, MCCPs and LCCPs detection.

#### Conclusion and perspectives

The source parameters tested in this study demonstrated to be CPs homologue dependant and to strongly affect CPs ionization. Although these parameters could be further optimized for specific CP groups investigation, the ESI-Cl-enhanced optimised protocol presented here enables comprehensive analysis of a wide range of CPs with high sensitivity.

In the present work, the results on the spiked fish extract were only qualitative. Future work directions include the selection of internal standards to study more precisely the response factors and to quantify CPs in biotic and abiotic samples.

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#### References

1. Van Mourik LM, Gaus C, Leonards PEG, et al. (2016); *Chemosphere*, 155: 415-428
2. Conference of the Parties of the Stockholm Convention, Decision SC-8/11 Listing short-chain Chlorinated Paraffins 'SCCPs) in *Annex A of the Convention*, 2017, Geneva
3. Brandsma SH, van Mourik LM, O'Brien JW, et al. (2017); *ES&T*, 51: 3364-3372
4. Cariou R, Guitton Y, Lesquin E, et al. (2017) ; *Proceedings Dioxins 2017*, 9900
5. Van Mourik LM, Leonards PEG, Gaus C, et al. (2015); *Chemosphere*, 136: 259-272