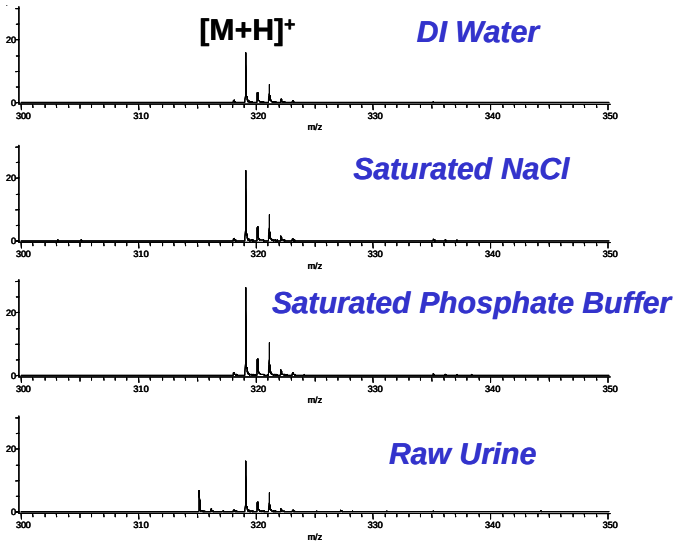
DART Contamination Resistance: Analysis of Compounds in Saturated Salt and Buffer Solutions

DART provides very simple mass spectra that are free of multiple charging and alkali metal cation adducts such as $[M+Na]^+$ and [M+K]. This facilitates identification of target compounds in mixtures and simplifies assignment of elemental compositions for unknowns.

50 ppm solutions of chlorpromazine were prepared in ultrapure deionized (DI) water, aqueous solutions of saturated sodium chloride and saturated potassium phosphate buffer, and raw urine. Two microliters of each solution were applied to glass melting point tubes and analyzed by DART.

The mass spectra are shown below. All spectra are characterized by $[M+H]^+$ and there is no evidence of $[M+Na]^+$ or $[M+K]^+$. Sample suppression is not observed at this concentration.



DART analysis of chlorpromazine in various solutions.

Note: Ranitidine (m/z 315) is also present in the urine background.

Conclusion

DART provides simple mass spectra, free of alkali metal cation adducts, even when analytes are present in concentrated salt or buffer solutions.

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