

Ion Formation from Complex Solutions: Understanding Matrix Effects and Ionization Suppression

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Since the first publication by Burhman et al in 1996 pointed out the hazards of using electrospray ionization for quantitative analysis, an aura of fear and superstition has grown around what has come to be popularly called ionization suppression and matrix effects. Much of the superstition and fear finds its foundation in confusion over the important processes controlling ion formation in complex solutions. The experimental information needed to understand the observed effects is available. However, it is spread through a vast volume of literature within otherwise unrelated disciplines. This presentation will draw upon the most relevant information in the literature to provide insight into what defines ionization suppression, why it happens, and what can be done to avoid the problems in quantitative analysis by LC-MS/MS.