A SIMPLE METHOD FOR DETERMINATION OF THIMEROSAL IN SOME COSMETIC PRODUCTS BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY-ION TRAP-TIME OF FLIGHT-MASS SPECTROMETRY (HPLC-IT-TOF-MS)

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Thimerosal or Thiomersal (sodium ethylmercurithiosalicylate, C₉H₉HgNaO₂S) is an ethyl mercury containing compound that is still frequently used as preservative for pharmaceutical and cosmetic products. Thimerosal was developed in 1927 and continues to be popular still today due to its wide range of applicability and efficiency in antimicrobial treatment already at very low concentrations. For decades, Thimerosal has been and continues still to be marketed as an antimicrobial agent in a range of products, including vaccines, as topical antiseptic solutions and antiseptic ointments for treating cuts, nasal sprays, eye solutions and some cosmetic products [1].

The detection of thimerosal at trace level in pharmaceutical products is of crucial importance. In the past various analytical techniques including high-performance liquid chromatography (HPLC) with electrochemical detection, colorimetry, atomic absorption spectrometry (AAS) and atomic fluorescence spectrometry (AFS) have been developed to detect thimerosal [2-4]. Liquid chromatography with ion trap-time-of-flight mass spectrometric detection (LC–IT-TOF-MS) integrates the advantages of an ion trap in producing multi stage (MSⁿ, with n up to 10) fragmentations and of TOF-MS in high resolution and accurate mass measurement and has been recently shown by us and other groups to be a very powerful tool in the identification of both target and non-target compounds [5, 6].

In this study, an LC-IT-TOF-MS method has been developed and validated for the quantitative determination of thimerosal. This method was applied for the analysis of thimerosal in some cosmetic products.

KEYWORDS: Thimerosal, cosmetics, LC-IT-TOF/MS, method development

REFERENCES: