

ANALYSIS OF LEMON EXTRACT BY NEGATIVE ION FIELD DESORPTION MASS SPECTROMETRY (NFD MS)

M. SUBHAN

Department of Chemistry, Gomal University, D.I.Khan, Pakistan

ABSTRACT

NFD MS is a mean for the selective detection of acidic compounds and of their salts from complex mixtures. This is due to the insensitivity of NFD MS to non-polar and majority of polar non acidic compounds. We have reported NFD mass spectra of lemon extracts which shows the detection and quantitatively determination of the mutual ratio of various non-volatile organic compounds in this extract by NFD MS.

INTRODUCTION

Fruit extract normally contains a number of organic and inorganic compounds in it and is not really an easy task to analyse such a mixture, using single technique. Therefore chromatographic techniques are widely applied for separation and for the quantitative determination, in combination with appropriate detectors. Since mass spectrometry is very sensitive and almost universal technique for the identification of compounds, the combination of chromatography with mass spectrometry is proved to be a powerful tool for mixture analysis. This has been demonstrated for gas chromatography combined with mass spectrometry (GC-MS) for more than two decades and more recently also for liquid chromatography combined with mass spectrometry (LC-MS) (1). While GC-MS is a well established technique, LC-MS is still under development and needs improvement (2). Although numerous methods exist, with and without mass spectrometry involvement, for the quantitative analysis of mixtures, but fast analytical techniques which allow the selective detection of components of mixtures without time consuming are of interest. Such techniques are useful for characterization of unknown mixtures prior to the application of separation procedures. On the basis of calibration curves semi-quantitative information may also be derived from these observations. Large molecular ions by low energy impact has been widely discovered (3). Field desorption Mass spectrometry (FD-MS) introduced by Beckey (4) has been widely applied in the mixture analysis. Though a lot of work is reported in positive mode of FD-MS but very little work has been carried out in negative ions (5). Therefore our interest is to elaborate the application of NFD MS towards general mixture analysis like lemon extract.