NEW APPLICATIONS OF ION MOBILITY SPECTROMETRY INCLUDING PLANT SPECIATION AND POTENTIAL DETECTION OF ADULTERATED PERFUMES

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Ion mobility spectrometry (IMS) has traditionally been used for detection of illegal drugs and explosives. The actual potential of IMS has yet to be realized. In this presentation, IMS is evaluated as a rapid test procedure for detection of adulterated perfumes and speciation of plant life. Sample types measured consist of five genuine perfumes, two species of sagebrush, and four species of flowers. It is shown that principal component analysis with K-nearest neighbors provides classification. Results from this examination are encouraging and demonstrate that perfumes and plants possess characteristic chemical signatures useful for reliable identification. This study also suggests that IMS could be used for other adulteration applications. For example, counterfeit wines could be identified as well as discerning regional differences in wines. Food spoilage represents another possible application of IMS. For instance, determining if potatoes or fruits in storage are beginning to spoil is of significant concern. Related to this is assessing the freshness of meat and fish products. Finally, another potential application for IMS is quality control of products that maintain characteristic volatile signatures.