DISCRIMINATION OF ESSENTIAL OILS USING LASER-INDUCED BREAKDOWN SPECTROSCOPY (LIBS). Teresa M. Eaton, Dr. Maurice Edington, Dr. Lewis Johnson, Dr. Charlemagne Akpovo. Jorge Martinez

Essential oils have a wide range of applications in the cosmetics, pharmaceutical and food industries. Gas Chromatography Mass Spectroscopy (GC/MS) is the most common technique for quality control. Laser Induced Breakdown Spectroscopy (LIBS) can offer a faster alternative. LIBS was used to classify several essential oils based on their chemical composition. The sample was excited at 532 nm with the second harmonic of a ND:YAG laser (brilliant, Big Sky). The spectral data was analyzed using Multivariate Statistical Package (MSVP), Statistical Package for Social Sciences (SPSS) and Discriminate Function Analysis (DFA) utilizing several pre-processing techniques. The results indicate that LIBS is an excellent tool for discriminating essential oils based on their elemental composition.