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Direct-infusion high-resolution mass spectrometry as a tool for authentication of cannabis

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There is a growing interest in natural and traditional medicines, many of which are plant based. For the US, Cannabis products have been used to treat a variety of ailments from insomnia to seizures. They also are a valuable tool in combatting the opioid epidemic that is ravaging the US. Because the chemical composition of plants varies based not only on genetics or hybridization but also on cultivation and harvesting. Chemical profiling is also known as spectral fingerprinting and is a rapid tool for authentication. Plant extracts are characterized by their chemical compositions using pattern recognition so that the costly step of identifying and quantifying each compound in the extract can be avoided. Also avoidance of the difficult step of selecting peaks and integrating mass spectral peaks by using direct-infusion, high-resolution mass spectrometry analysis time can be shortened to less than 5 min per sample. Pattern recognition models of the chemical profiles may be linked to pharmacological profiles and MS affords a powerful tool to go back and identify these active compounds. This approach has been successfully applied to a wide range of extracts that include marijuana, hemp, black cohosh, ginseng, and tea. The focus of the presentation will be on *Cannabis*.

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