

the extract ion chromatograms at m/z 205 (psilocin) and m/z 285 (psilocybin), respectively. It is clear that iHILIC®-Fusion was able to separate psilocin and psilocybin from each other and also from the major matrix compounds within 15 min. A unique feature is that psilocybin elutes with a retention factor two times greater than that of psilocin. In addition, the sample preparation consists of few steps to minimize error sources and assure reliable results.

In the second step of this work, we separated the methanolic solution of psilocin and psilocybin standards to confirm the detection of these two alkaloids in the mushroom extract. As shown in Figure 3, both psilocin and psilocybin have identical retention times to the standards compared to those peaks from the mushroom extracts. Therefore, the developed method is selective for the two target compounds and can be used for the quantification as described in our early work (1).

Conclusion

This work illustrates how to use an iHILIC®-Fusion column and MS detection to separate and identify psilocin and psilocybin in hallucinogenic mushrooms or "magic mushroom" extracts. This developed HILIC-MS method can be utilized in forensic and clinical applications.

References

- (1) J. Nagy and T. Veress, *J. Forensic Res.* **7**, 356 (2016), DOI: 10.4172/2157-7145.1000356.
- (2) N. Rácz, J. Nagy, W. Jiang, and T. Veress, *J. Chromatogr. Sci.* **57**, 230–237 (2019).
- (3) M.W. Beug and J. Bigwood, *Journal of Chromatography* **207**, 379–385 (1981).
- (4) N. Anastos, S.W. Lewis, N.W. Barnett, and D.N. Sims, *J. Forensic Sci.* **51**, 45–51 (2006).
- (5) R. Kysilka and M. Wurst, *Planta Med.* **56**, 327–328 (1990).
- (6) V. Gambaro, G. Roda, G.L. Visconti, S. Arnoldi, and E. Casagni, *J. Anal. Bioanal. Tech.* **6**, 277 (2015).

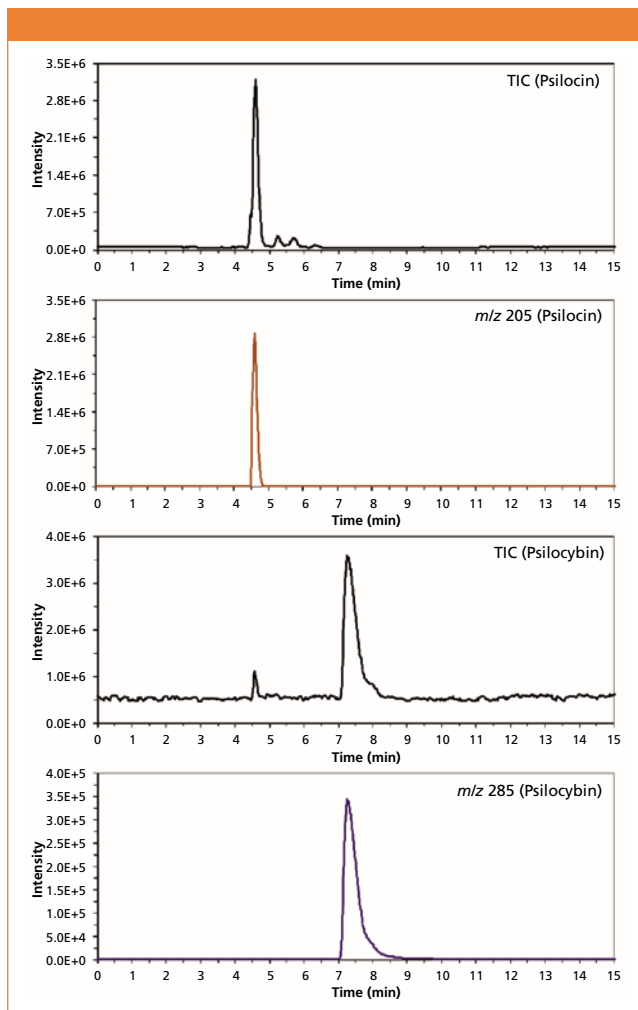


Figure 3: Total ion chromatogram (m/z 40–400) of psilocin and psilocybin standards and extracted ion chromatograms of m/z 205 (psilocin) and m/z 285 (psilocybin).



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