

### **PP71. GC-MS analysis of volatiles from different *Lycopodium* species with acetylcholinesterase activity**

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Searching for natural inhibitors of different enzymes, e.g. acetylcholinesterase (AChE), is a modern approach in drug discovery. *Lycopodium* L. (Lycopodiaceae) species containing alkaloids appear to be a rich source of acetylcholinesterase inhibitors.

In our study, a GC-MS analysis of the extracts of *L. clavatum*, *L. annotinum*, and *Huperzia serrata* (syn. *Lycopodium serratum* Thunb.), containing volatile constituents with AChE-inhibitory activity, was performed. The detection of AChE-inhibitory activity of the investigated extracts was achieved by TLC-bioautography.

The GC-MS analysis was carried out on a Shimadzu GC-2010 Plus chromatograph coupled to a QP2010 Ultra mass spectrometric detector using a Phenomenex capillary column ZB-5MS (30 m; diameter of 0.25 mm and thickness of 0.25 µm). The initial column temperature was set to 50 °C, which was held for 3 min, and in the next step, the column was heated to 250 °C at a rate of 8 °C per min (and was then held at that temperature for 2 min). The split ratio after the injection of 1 µL was 1:20 and helium was used as the carrier gas (the flow rate was 1 mL per min). Ionization was performed by electron impact at 70 eV. The identification of compounds was based on a comparison of their mass spectra with those of MassFinder and NIST mass spectral libraries, as well as by retention index (calculated based on a homologous series of *n*-alkanes) comparison.

The GC-MS analysis allowed the identification of alkaloids belonging to the main classes of alkaloids characteristic for *Lycopodium* spp., e.g. the lycopodane group.

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