

# Acetylation and Silylation of Piperidine Solubilized Sporopollenin from Pollen of *Typha angustifolia* L.

Friedhelm Ahlers<sup>a</sup>, Jörg Lambert<sup>b</sup>, and Rolf Wiermann<sup>a,\*</sup>

<sup>a</sup> Institut für Botanik, Westfälische Wilhelms-Universität, Schlossgarten 3, 48149 Münster, Germany. Fax: (+49)25 1832 3823. E-mail: Wierman@uni-muenster.de

<sup>b</sup> Institut für Spektrochemie und Angewandte Spektroskopie (ISAS), Bunsen-Kirchhoff-Straße 11, 44139 Dortmund, Germany

\* Author for correspondence and reprint requests

Z. Naturforsch. **58c**, 807–811 (2003); received May 19/July 2, 2003

Silyl and acetyl derivatives of sporopollenin from the pollen of *Typha angustifolia* L. were prepared. The derivatized products were readily soluble in piperidine-d<sub>11</sub> and could be investigated employing one- and two-dimensional proton and carbon NMR (nuclear magnetic resonance) spectroscopy (<sup>1</sup>H, <sup>1</sup>H-COSY and <sup>13</sup>C, <sup>1</sup>H-HETCOR techniques). For the first time, a two dimensional <sup>13</sup>C, <sup>1</sup>H-HETCOR NMR spectrum of a sporopollenin could be obtained. The results underline the importance of derivatization techniques for obtaining two dimensional <sup>13</sup>C-NMR spectra of sporopollenins. Moreover, piperidine turns out to be a more suitable solvent for sporopollenins than 2-aminoethanol, as it allows for higher solubilities, being important for 2D-NMR investigations. From the HETCOR and COSY spectra of the silylated and the acetylated *Typha* samples the occurrence of aliphatic polyhydroxy compounds as well as phenolic OH groups became evident.

*Key words:* *Typha angustifolia* L., Sporopollenin, Solubilization in Piperidine