



フーリエ変換赤外分光法による セルロースマイクロフィブリルの面配向の再検討

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Preferential uniplanar orientation of cellulose microfibrils reinvestigated by the Fourier transform infrared spectroscopy

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Abstract: A simple detection method to observe the uniplanar orientation behavior of native cellulose microfibrils to the cell wall surface by using Fourier transform infrared (FTIR) spectroscopy in the transmission mode is reported. Four bands at 1372, 1355, 1337, and 1317 cm^{-1} were found to be sensitive to such orientation: the two middle bands at 1355 and 1337 cm^{-1} increase remarkably when the 0.60–61 nm lattice planes lie parallel to the cell wall surfaces. The reverse was true when the 0.53–54 nm lattice planes oriented preferentially. Polarization of the two bands at 1372 and 1355 cm^{-1} was parallel, while that of the other two bands at lower wavenumbers, i.e., at 1337 and 1317 cm^{-1} , was perpendicular to the molecular axis of cellulose. These bands were assigned to OH-related motion, probably to in-plane OH bending.
(Preferably 100 to 150 words)

1. 緒言: セルロースマイクロフィブリルは、...

2. 方法: セルロース試料は、...

3. 結果および考察: 解析の結果、...

参考文献

1) Seniso, P., Fukuhime, S., Koshino, Y., *Cellulose*, **13**, 309 (2006).

2)

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