

Studies on the Nanostructure of the Cell Wall of Maidenhair Tree and Chinese fir using wide-angle x-ray scattering

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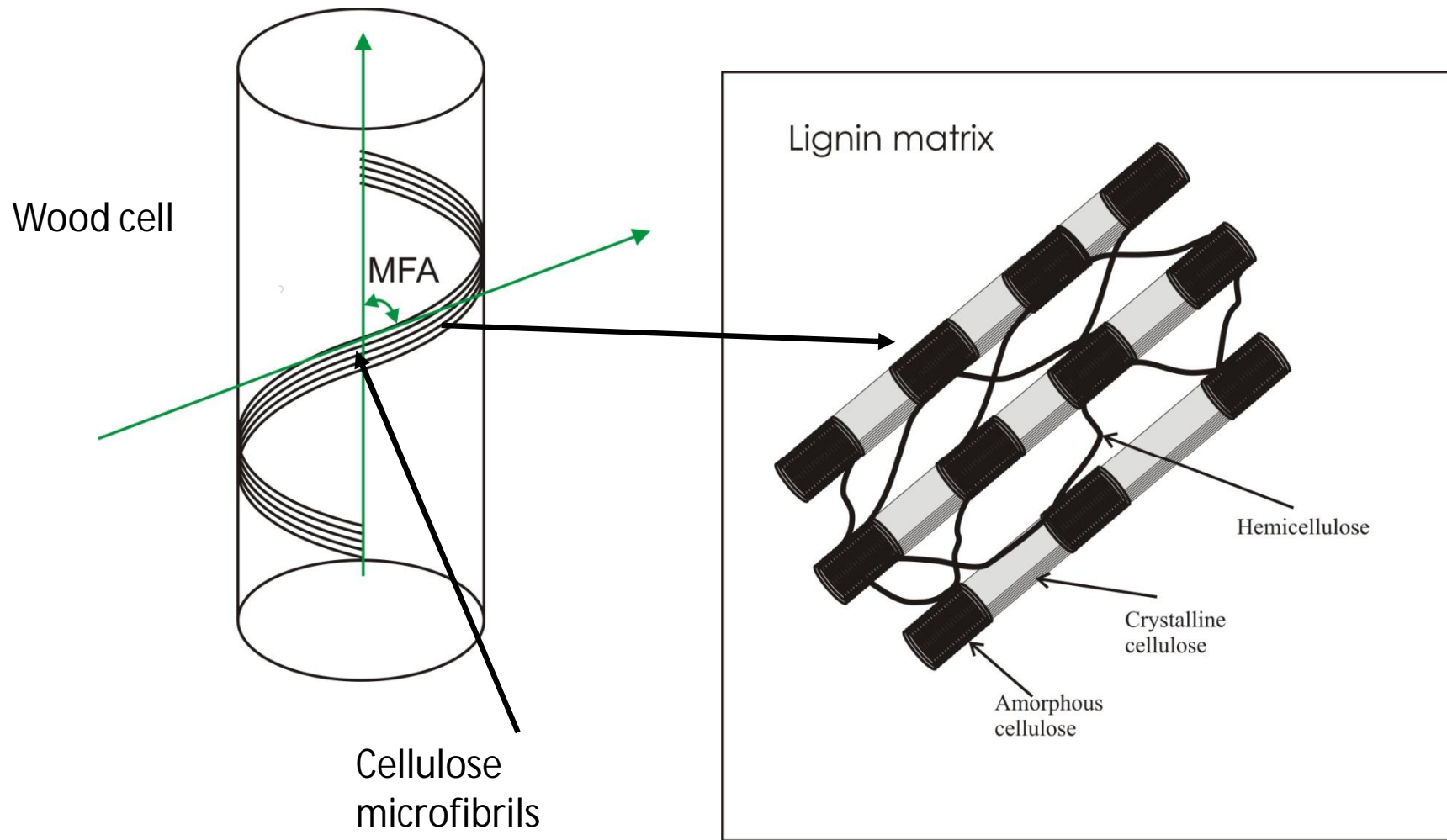
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Maidenhair tree (*Ginkgo biloba*)

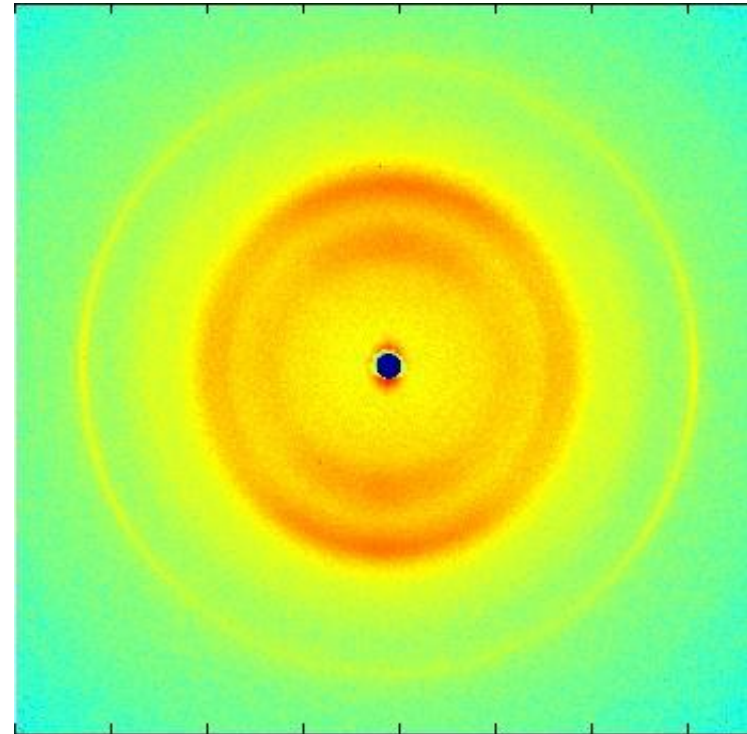
- The maidenhair tree is interesting because it has been described as a living fossil.
- It is known to have existed early in the Jurassic period 170 million years ago.
- The purpose is to compare its cell wall nanostructure with evolutionary younger species.

The nanostructure of cell wall was studied by x-ray scattering



The microfibrilangle (MFA)

- The MFA values varied between 22° and 34° .
- It doesn't decrease rapidly as a function of the annual ring number like in Norway spruce.



The 2D WAXS patterns of a Maiden hair sample.

The size of cellulose crystallite

- Length: 290 Å (For Norway spruce 360 Å)
- Thickness: 31 Å
(Norway spruce: 32 Å, Scots pine: 31 Å)
- The constant thickness cellulose crystallites may indicate that cellulose biosynthesis has remained the same for millions of years.