Nematode Worms

Nematodes are multicellular organisms with defined digestive, nervous, reproductive and locomotive systems analogous to those found in higher organisms. However, their overall physical shape and characteristics are considerably more complex compared to that of cell layers or tissue sections. From the perspective of IR spectroscopy a nematode is thick, consisting of many layers of cells in the centre, making spectral interpretation complex.

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Conclusions

Measurements of nematodes in air suffer from spectral distortions similar to Mie or resonant Mie scattering. Similar distortions are seen for polypropylene fibres measured in air. Mie scattering correction eliminates most of the scattering artefacts but some remain in the 1700 to 2000 cm⁻¹ region. Resonant Mie scattering correction eliminates all of the scattering artefacts, suggesting that the fibre is not responsible for Mie scattering. Surrounding the nematode in a medium with a closer refractive index match is an alternative method to eliminate the resonant Mie scattering distortions but is hampered by the availability of a suitable liquid to allow artefact free IR measurements.