

FT-Raman and FTIR spectroscopic characterization of biogenic carbonates from Philippine venus seashell and *Porites* sp. coral

Abstract

Some seashells of the Philippine venus species and sea coral of *Porites* sp. were studied by means of FT-Raman, Fourier transform infrared spectroscopy (FTIR) and Far-FTIR spectroscopic methods. The Raman spectra show that both *Porites* sp. and *P. venus* are of aragonite-structured CaCO_3 . Detailed spectral analysis, however, reveals some small differences, due to differences in the crystallite size or habit and to different minor element contents. IR spectra show that *Porites* sp. contains also some small quantities of calcite-structured carbonates. The ν_2 band (shoulder) of calcite at 875.7 cm^{-1} is present in the IR spectrum. The separation of the two ν_2 bands (856.4 cm^{-1} for aragonite and 875.7 cm^{-1} for calcite) suggests the absence of solid solution of the two polymorphic phases of CaCO_3 . Spectroscopic results were confirmed also by X-ray powder diffraction measurements.