Uniwersytet Wrocławski

Repozytorium

Plik pochodzi z repozytorium Wydziału Chemii Uniwersytetu Wrocławskiego

Vibrational spectra of racemic and enantiomeric malic acids.

Autorzy

H. Barańska

Janina Kuduk-Jaworska

Roman Szostak

Anna Romaniewska

Rok wydania

2003

Czasopismo

Journal of Raman Spectroscopy

Numer woluminu

34

Strony

68-76

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

The IR and Raman spectra of racemic (DL-) and both enantiomeric (L-andD-) forms of malic acids andalso their silver salts and deuterated analogues weremeasured in the polycrystalline state in the range4000 – 100 cm−1. Significant differences in the spectra ofthe racemic and enantiomeric forms of malicacid were described for the first time and are discussed in relation to the structural features, includingcrystal symmetry, geometric parameter distinctionsand hydrogen bonding. The most significant spectraldifferences were noted in the ranges 3000 – 2800 and 1740 – 1630 cm−1.Inthen(CH) stretching regiondistinctions were strongly pronounced in the Raman spectra and the observed pattern was ascribed tocrystal symmetry differences. In the second regiondifferences were visible in both the IR and Ramanspectra and they were explained as a result of distinctions in the geometric properties of carboxyl-dimerrings of theL-andDL-forms, namely two non-equivalent types of H-bonded carboxyl-dimer rings arepresent in the crystal ofDL-form, which results in a doublet in then(CO) stretching region. In the caseof the enantiomeric form, all H-bonded carboxyl-dimer rings are equivalent, so a singlen(CO) band isobserved in their spectra. Other differences in thespectra of these species were observed in the regionbelow 1500 cm−1but their explanation is less straightforward.

Słowa kluczowe

malic acid enantiomers, deuterated malic acid, silver malate, Raman spectra, infrared spectra

Strona internetowa wydawcy

onlinelibrary.wiley.com

Plik został wygenerowany dnia 2026-08-26 11:23:17

Adres w repozytorium https://old.chem.uni.wroc.pl/pl/repozytorium/Af8Toul.