Resonance raman and absorption spectra of isomeric retinals in their lowest excited triplet states - DTU Orbit (18/10/2019)

Resonance raman and absorption spectra of isomeric retinals in their lowest excited triplet states

The triplet-triplet absorption spectra of 9-cis and all-trans-retinal as well as the time-resolved resonance Raman spectra of the lowest electronically excited triplet states of 9-cis-, 11-cis, 13-cis and all-trans-retinal in aromatic solvents at room temperature were obtained under conditions ensuring the isomeric purity of the starting materials. The triplet states were produced by triplet energy transfer from a sensitizer in pulse-radiolysis experiments. The isomeric retinals evidently form either different relaxed triplet species or different mixtures of relaxed triplet species. The possible implications about the size of the energy barriers separating the various triplet species are discussed. The resonance Raman spectra obtained by using either anthracene (ET = 177.7 kJ mol⁻¹) or naphthalene (ET = 254.8 kJ mol⁻¹) as sensitizers were virtually identical for the corresponding triplet states from each of the isomers 11-cis-, 13-cis- and all-trans-retinal, suggesting that the relaxed triplet species or the mixture of relaxed triplet species formed from each isomer is independent of the energy of the sensitizer.

General information
Publication status: Published
Organisations: Risø National Laboratory for Sustainable Energy
Contributors: Wilbrandt, R. W., Jensen, N., Houee-Levin, C.
Pages: 175-182
Publication date: 1985
Peer-reviewed: Yes

Publication information
Journal: Photochemistry and Photobiology
Volume: 41
Issue number: 2
ISSN (Print): 0031-8655
Original language: English
Source: orbit
Source ID: 279693
Research output: Contribution to journal › Journal article – Annual report year: 1985 › Research › peer-review