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Plik pochodzi z repozytorium Wydziału Chemii Uniwersytetu Wrocławskiego

Ultraviolet-tunable laser induced phototransformations of matrix isolated isoeugenol and eugenol.

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2012

Czasopismo

Journal of Physical Chemistry B

Numer woluminu

116

Strony

11148-11158

DOI

10.1021/jp306339g

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

In situ photochemical transformations of monomers of 2-methoxy-4-(prop-1-enyl)phenol (isoeugenol) and 2-methoxy-4-(prop-2-enyl)phenol (eugenol) isolated in low temperature matrices were induced by tunable UV laser light, and the progress of the reactions was followed by FTIR spectroscopy. Conformer-selective *E* ↔ *Z* geometrical isomerizations could be successfully induced by irradiation at different wavelengths from the 310–298 nm range in the isoeugenol molecule, contains an asymmetrically substituted exocyclic C═C bond. Photolysis of both studied compounds was also observed, with H-atom shift from the OH group and formation of two types of long-chain conjugated ketenes. The photoproduced ketenes were found to undergo subsequent photodecarbonylation. Interpretation of the observed photoprocesses was supported by quantum chemical calculations undertaken at different levels of theory (DFT, MP2, QCISD).

Adres publiczny

https://doi.org/10.1021/jp306339g

Strona internetowa wydawcy

https://www.acs.org/content/acs/en.html

Plik został wygenerowany dnia 2026-04-29 06:58:51

Adres w repozytorium https://old.chem.uni.wroc.pl/pl/repozytorium/c6erBb9.