

ABSTRACTS

**Studies on the Syntheses of the Pyrethrin Analogues
and their Biological Activities. (II)**

Relationship between the Stereochemistry and the Biological Activities

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The separation of ($\pm$)-2,2-dimethyl-3-(3',4'-methylenedioxyphenyl)-cyclopropane-1-carboxylic acid into the geometrical isomers and the assignment of their configurations were achieved. Of the two isomers, the ($\pm$)-*trans*-acid, which was found more toxic when esterified with ($\pm$)-allethrolone, was resolved by means of an optically active α -phenylethylamine salt into (+)- and (-)-enantiomers. (1*R*:3*R*)-Configuration was assigned to the (+)-*trans*-acid and (1*S*:3*S*)-configuration to the (-)-*trans*-acid. The bioassay revealed that the ($\pm$)-allethrolone ester with the (+)-*trans*-acid, which belongs to the same optical series as the natural chrysanthemum acids, was the most toxic against common houseflies, as was the case with other pyrethroids.