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 (±)-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 (±)-trans-acid, which was found more toxic when esterified with (±)-allethrolone, was resolved by means of an optically active α-phenylethylamine salt into (+)- and (−)-enantiomers. (1R:3R)-Configuration was assigned to the (+)-trans-acid and (1S:3S)-configuration to the (−)-trans-acid. The bioassay revealed that the (±)-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.