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Separation of Some Pyrethroid Insecticides by High-Performance Liquid Chromatography

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Abstract : Pyrethroids are synthetic pesticides that originated from the modification of natural pyrethrins to improve their biological activity and stability. They are a family of chiral pesticides with a large number of stereoisomers. Enantiomers of synthetic pyretroids present different insecticidal activity, toxicity against aquatic invertebrates and persistence in the environment so the development of rapid and sensitive chiral methods for the determination of different enantiomers is necessary. In this study, the separation of enantiomers of pyrethroid insecticides has been systematically studied using three commercially chiral high-performance liquid chromatography columns. Useful resolution was obtained for compounds with a variety of acid and alcohol moieties, and containing one to four chiral centres. The chromatographic behaviour of the diastereomers of some of these insecticides by using normal, polar and reversed mobile phase mode were also examined.

Keywords : pesticides, analysis, liquid chromatography, pyrethroids
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