

STERESELECTIVE DETERMINATION OF DIFENOCONAZOLE USING HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY-TANDEM MASS SPECTROMETRY (HPLC-MS/MS)

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Difenoconazole is a fungicide used in agriculture to control various fungal diseases in fruit, vegetables, cereals and other field crops. Difenoconazole works by inhibiting demethylation during ergosterol synthesis.

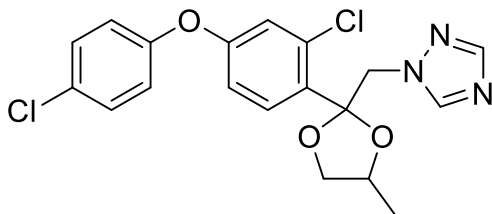


Figure.1 Difenoconazole

Difenoconazole has two chiral carbon centers and therefore 4 stereoisomers. Because of the chiral elements in the molecular structure the degradation, metabolism, migration, and transformation of the two enantiomers in different chiral environments can be very different. Therefore, with the widespread application of chiral pesticides in modern agriculture, it is necessary to study chiral pesticide residues and their environmental behavior at the enantiomeric/stereoisomeric level.

The aim of the present study was to investigate the separation of stereoisomers of difenoconazole by high-performance liquid chromatography using polysaccharide-based chiral columns. In this study we investigated the separation of stereoisomers of difenoconazole using mass spectrometer-compatible mobile phases.

Based on the results obtained, we made some conclusions about the influence of the mobile phase on the retention and separation of difenoconazole stereoisomers on chiral columns.

The developed separation method was then used to generate calibration curves for difenoconazole and its stereoisomers in agricultural commodities. These calibration curves were used to assess the differences in residue levels of difenoconazole-stereoisomers in agricultural products.