

# SEPARATION OF DIFENOCONAZOLE STEREOISOMERS BY HPLC AND ITS DETERMINATION IN AGRICULTURAL PRODUCTS USING HPLC-MS/MS FOR RISK ASSESSMENT

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Difenoconazole is a fungicide used in agriculture to control various fungal diseases in fruits, vegetables, cereals and other field crops. Difenoconazole acts by inhibition of demethylation during ergosterol synthesis [1].

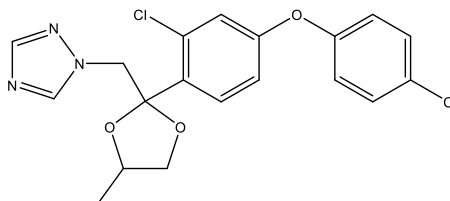


Figure.1 Difenoconazole

Difenoconazole has two chiral carbon centers and thus, 4 stereoisomers. The goal of the present study was to study a separation of stereoisomers of difenoconazole in high-performance liquid chromatography by using polysaccharide-based chiral columns. In this study, we investigated the separation of stereoisomers of difenoconazole with mass spectrometer-compatible mobile phases.

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

The developed separation method was subsequently applied to create calibration curves for difenoconazole and its stereoisomers in cucumber and eggplant. These calibration curves were used to assess the differences in the residue levels of difenoconazole across the three agricultural products. The curves enabled accurate quantification of difenoconazole concentrations, providing a reliable tool for evaluating pesticide residue levels in these crops.

## References:

1. Difenoconazole (224)-food and Agriculture Organization

[https://www.fao.org/fileadmin/templates/agphome/documents/Pests\\_Pesticides/JMPR/Evaluation07/Difenoconazole.pdf](https://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/JMPR/Evaluation07/Difenoconazole.pdf)