

**ENANTIOSELECTIVE ANALYSES OF PENCONAZOLE IN AGRICULTURAL PRODUCTS
USING LIQUID CHROMATOGRAPHY COUPLED WITH TANDEM MASS
SPECTROMETRY (HPLC-MS/MS)**

Ana Rakviashvili, Bezhan Chankvetadze

Chair of Physical and Analytical Chemistry, Department of Chemistry, School of Exact of Natural Sciences,
Tbilisi State University,
Tbilisi, Georgia

ana.rakviashvili148@ens.tsu.edu.ge

Penconazole is a widely used fungicide in agriculture for controlling fungal diseases across various crops. Accurate quantification and enantiomeric separation are critical for understanding its behavior, efficacy and potential environmental impact.

The primary objective of this study was to develop a method for the enantiomeric separation of penconazole using high-performance liquid chromatography (HPLC) with polysaccharide-based chiral columns. The separation was optimized with mass spectrometry-compatible mobile phases to ensure broader applicability in pesticide residue analysis. Additionally, liquid chromatography coupled with tandem mass spectrometry (LC-MS/MS) was employed to identify and quantify penconazole enantiomers in various agricultural samples. Calibration curves were constructed to enable precise quantification.

These findings provide valuable insights into optimizing chromatographic conditions for enantiomeric analysis of chiral pesticides.