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LC-UV METHOD FOR THE DETERMINATION OF FLUDIOXONIL RESIDUE IN RICE GRAINS CULTIVATED IN DIFFERENT REGION OF SINDH AND PUNJAB

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Present study reports quantitative analysis of fludioxonil residue in rice grains by high performance liquid chromatography with UV-detection. Separation was achieved on a Pruospher® STAR LP (5µm) C18 column at room temperature using mobile phase 50:50 v/v methanol-water (pH 3.3) employing flow rate 1.0 mL min⁻¹. Method was validated following FDA guidelines which showed a very good linear correlation (R²=0.998) within linearity range 0.25 to 16 mg/kg. The lowest limit of detection was found to be 0.0042. Intra-day and inter-day precision were in the range 0.6-1.7 and 0.3-1.3% RSD respectively. Application of the proposed method was confirmed by analyzing fludioxonil residues in rice grains after extraction with methanol:acetone (1:1) and clean-up by acidic alumina:charcoal (1:12) using dichloromethane as the elution solvent. Results showed the concentration of fludioxonil in rice samples collected from the region Badin, Hyderabad, Multan and Lahore was found to be below its MRL level i.e. 0.046 and 0.043, 0.045 and 0.040mg/kg where as its concentration was high in Gularchi and Khanewal samples i.e 0.058 and 0.065 mg/kg respectively. Fludioxonil residue was found to be very low in Sargodha and Jahania samples i.e 0.016 and 0.024 mg/kg respectively and it was not detected in rice sample collected from city Makhdumpur.

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