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Dynamics of difenoconazole and propiconazole residues on pomegranate over a period of two years under field conditions

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Difenoconazole and propiconazole are used for control of wilt and anthracnose of pomegranate which are serious diseases. The repeated usage of these chemicals may leave residues above the maximum residue limit (MRL) leading to food safety issues. Dynamics of difenoconazole and propiconazole residues on pomegranate was carried out as per good agricultural practices (GAP) by application at 125 and 250 g a.i./ha during August-October, 2012. The study was repeated during the same period in 2013. Pomegranate whole fruit and aril samples were extracted and purified as per QuEChERS method after carrying out method validation studies (SANCO/12495/2011).

Analytical method used for analysis of the fungicides gave satisfactory results with recovery within 80.3 - 97.3%; limit of detection, 0.015 ppm; limit of quantification, 0.05 mg/kg; relative standard deviation, 2.9-10.7% and measurement uncertainty, 9.7 -17.1%. Initial residue levels of difenoconazole and propiconazole varied widely over 2 years from both treatments. The safe pre-harvest interval, the time required for residues to dissipate to the permissible levels (MRL), was 22 and 27 days the first year and 25 and 31 days the second year for difenoconazole from treatment at 125 and 250 g a.i./ha. For propiconazole it was 33 and 44 days the first year and 30 and 42 days the second year. Though initial residues differed the half-life of degradation remained almost the same for both compounds over two years. It was about 7-8 days for difenoconazole; 8 days for propiconazole. The results indicate that under similar environmental conditions dissipation pattern of difenoconazole and propiconazole on pomegranate may be similar.

Keywords: Difenoconazole, half-life, pre-harvest interval, propiconazole, residue dynamics.

Biography

Soudamini Mohapatra is Principal Scientist in the Pesticide Residue Laboratory, Indian Institute of Horticultural Research, Bangalore with more than 25 years of experience in the field of pesticide residue chemistry. Her field of specialization is food safety, method development, quality assurance and biodegradation. She has established ISO 17025:2005 International standard in the laboratory and involved in activities such as "Monitoring of pesticide residues at National Level. She has published 65 papers in reputed national and international journals and currently empanelled by National Accreditation Board for Testing and Calibration Laboratories as an Assessor.

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