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Dissipation studies of chlorantraniliprole on capsicum in field and poly house conditions for food safety

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ABSTRACT : Chlorantraniliprole is a broad spectrum foliar insecticide with contact and systemic action, widely used on vegetables in India for the management of lepidopteran insects both in field and poly houses. Chlorantraniliprole is not registered for use on capsicum in India and hence, maximum residue limits are not available as per Food Safety and Standards Authority of India. However, use of chlorantraniliprole in open field and poly house is very common hence, chlorantraniliprole residues are found in survey samples. A research project was taken to study dissipation pattern of chlorantraniliprole 20 SC in both open fields and poly houses, when applied thrice @ 60 g a.i.ha^{-1}, first spray at fruit initiation followed by second and third spray at 10 days interval as per the farmers practice. Chlorantraniliprole residues were quantified through regular sampling till the residues are below determination level (BDL) of 0.05 mg kg^{-1} following the validated QuEChERS method. The qualitative and quantitative analysis of chlorantraniliprole was performed on LC- MS/MS (PDA). Initial deposits of 0.36 mg kg^{-1} were detected in capsicum samples collected from open filed, which dissipated to BDL in 7.0 days while in poly house, initial deposits of 1.31 mg kg^{-1} were dissipated to BDL in 15.0 days. The waiting period for safe harvest was worked out to be 7.0 and 15.0 days when chlorantraniliprole 20 SC @ 60 ml a.i. ha^{-1} sprayed thrice in open and poly house conditions, respectively. Dissipation is slow in poly house compared to open fields due to various factors. In both situations initial deposits are lower than the MRL (2 mg kg^{-1}) of Codex Alimentarius Commission hence, a pre-harvest interval of 7.0 and 15.0 day is recommended.

KEY WORDS : Chlorantraniliprole, Capsicum, Field, Poly house, Food safety

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