

Study on the distribution of deltamethrin residues in stored wheat using sequential fractionation procedure

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Abstract

The distribution of deltamethrin residues in different fractions of stored wheat were investigated by sequential fractionation procedure, which modified the plant cell wall fractionation procedure established by Langebartels and Hams (1985) to conform to the property of deltamethrin. In this procedure, deltamethrin - treated wheat were firstly extracted with pH 7.0 buffers and organic solvents to remove the extractable deltamethrin. Subsequently, the treated wheat was fractionated into six macromolecular components using various enzymatic or chemical reagents. With the quantification of deltamethrin by gas chromatography, a majority of the released deltamethrin residues was found in organic solvents, and the unextractable residues were mainly distributed in starch, protein and pectin components of grain. Control incubations in the absence of enzyme or chemical reagents were further performed, which indicated that the interactions between unextractable deltamethrin and six macromolecular components may be different.

Keywords: Deltamethrin, Residues, Fractionation, Stored grain