

Title Evaluation of ^{35}S -residues in grains and grain fractions fumigated with ^{35}S -labelled carbonyl sulfide

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Abstract

^{35}S -labelled carbonyl sulfide (CO^{35}S) was used to measure the amount of sorbed ^{35}S residues and converted ^{35}S residues in grains and grain fractions after fumigation with CO^{35}S . Hard wheat, soft wheat, paddy rice, brown rice, polished rice, sorghum, maize, canola, barley, oats and peas were exposed for 4 days to 50 mg L^{-1} of CO^{35}S with a total radioactivity of 20 mCi. After exposure, the samples were aired. The levels of ^{35}S residues varied with extraction solvent, e.g. $0.003\text{--}0.02 \text{ mg (COS equivalents) kg}^{-1}$ (grain) in chloroform extractions and $0.09\text{--}0.38 \text{ mg kg}^{-1}$ in water extractions. More than 90% of ^{35}S (COS equivalents) residues were in the water extractions. The total radioactivity determined by scanning radiation images (fluorescent image) of extractions and sectioned commodities ranged from 0.1 to 0.4 mg kg^{-1} . The radiation image shows that more than 90% of ^{35}S residues were located or distributed in the embryo, testa, pericarp and husk, and that the ^{35}S was still slowly desorbing from grains after 2 days aeration.