FATE OF ^{35}S-LABELLED CARBONYL SULFIDE (COS) ON GRAIN AND GRAIN FRACTIONS

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ABSTRACT

^{35}S-labelled carbonyl sulfide (COS) was used to measure converted COS residues on grains and cereals. Hard wheat, soft wheat, paddy rice, brown rice, polished rice, sorghum, maize, canola, barley, oats and peas were exposed to 50mg L^{-1} of COS^{35} with a total radioactivity of 20m*Ci* at 25±1.0°C for 4 days. After exposure, the samples were split and ventilated with air and COS for 2 days. The result shows that the samples aerated with air contained higher levels of S-35 residues than those aerated with COS. This indicated an inter-changed between S-32 and S-35. Therefore, the levels of objective COS residues were lower than the levels of residue indicated by S-35. The levels of S-35 residues varied with durable commodity, eg. 3-20ng (COS equivalents) g^{-1} (grain) in lipid extractions and 95-380ng g^{-1} in water extractions. More than 90% of S-35 residues were in the water extractions. The total uptakes of radioactivity were below 350ng g^{-1} or 0.35mg kg^{-1} (ppm) for all tested 11 durable commodities.