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Investigations on fungicide removal from broccoli by various processing methods

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ABSTRACT

The removal of five fungicide residues from the broccoli matrices were achieved by various processing methods. The influence of washing with chlorinated and ozonated water, blanching and cooking on the concentration of azoxystrobin, boscalid, iprodione, metalaxyl, and pyraclostrobin has been studied on the broccoli samples collected from experimental plots over two weeks after the application. The analysis of five pesticides was carried out by gas chromatography with nitrogen-phosphorous and electron capture detection (GC-NPD/ECD) and matrix solid-phase dispersion as the sample preparation method. Fungicides levels in the unprocessed broccoli samples were 0.16–4.34 mg/kg. The washing of the matrices with chlorinated and ozonated water was not as effective as cooking in the removal of residual pesticides. Washing with chlorinated and ozonated water reduced concentration up to 45.9 and 49.0%, respectively. Blanching and cooking decreased residues up to 50 and 87%, respectively. Our results show that the cooking process has a great potential in the process of removing residual pesticides from broccoli.

Keywords: Processing methods; Fungicide residue; Broccoli

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