

Survey of organophosphorus pesticide residues in virgin olive oils produced in Chile

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Dimethoate, diazinon, parathion methyl, pirimiphos methyl, malathion, fenthion, chlorpyrifos, methidathion and azinphos methyl were determined in 71 olive oil samples produced in Chile from different varieties of olives (arbequina, frantoio, picual, lechino and blend) at three different harvest periods (2007, 2008 and 2009). The target pesticides were determined using a validated analytical method based on microwave-assisted liquid-liquid and solid-phase extraction with subsequent GC-FPD detection and GC-MS/MS for confirmation purposes. In 79% of the samples, five of the nine pesticides tested were detected with a frequency of one pesticide per sample. The highest detection rates were observed for the residues of chlorpyrifos and diazinon. The average concentration of chlorpyrifos, diazinon, azinphos methyl and methidathion were 0.084, 0.057, 0.024 and 0.010 $\mu\text{g g}^{-1}$, respectively. Higher contents of organophosphorus pesticides (OPPs) were found in regions where intensive agriculture