

PT8 Comparing Large Injection Volumes and Online Pre-concentration for the Analysis of Pesticides in Drinking Water

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Direct analysis of very large volumes of drinking water without preconcentration using an online extraction scheme to increase sensitivity

A comparison of online sample preconcentration injection of 1mL, 5mL and 20mL of drinking water samples were spiked with pesticide compounds is demonstrated. Two HPLC columns are utilized one as loading column and the second an analytical column for analysis of the compounds in the mixture. 1, 5 or 10mL of the spiked water (pesticide mixture from 1 to 100pg/mL) and blanks were injected directly onto a loading column (Hypersil GOLD 20X2.1mm 12u). After an appropriate time, a multi port valve switched to enable the load column to be back flushed onto the analytical column (Hypersil GOLD 50X2.1mm 3u), where compounds are separated prior to introduction into the mass spectrometer (TSQ Access). After the compounds are eluted, the valve is switched back to the starting position; the loading column is cleaned with organic phase and equilibrated.

The compounds analyzed shows an increase in response compared between the different injection volumes which show an average increase of ~4x for 1mL to 5mL injections and ~4.5x for 5mL to 20mL injections. This shows that the compounds studied are sufficiently retained on the loading column, and are not rinsed to waste during the transfer from sample loop to loading column. Furthermore, significant time savings are realized by this setup versus off line SPE and concentration.