Multiresidue determination of 256 pesticides in lavandin essential oil by LC/ESI/sSRM: advantages and drawbacks of a sampling method involving evaporation under nitrogen

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Résumé en anglais	The determination of 256 multiclass pesticides in lavandin essential oil has been performed by liquid chromatography–electrospray ionization tandem mass spectrometry using the scheduled selected reaction monitoring mode available on a quadrupole-linear ion trap mass spectrometer. With the aim of improving the limits of quantification (LOQs) of the target molecules, a sampling step based on evaporation of the essential oil under a nitrogen flow assisted by controlled heating was tested. The LOQs determined in this case were compared with the values obtained with the classic dilution preparation method. With sampling by dilution, 247 pesticides were detected and quantified at low concentration, with 74 % of the pesticides having LOQs of 10 µg L-1 or less. With the evaporation method, a global improvement of the LOQs was observed, with lower LOQs for 92 active substances and LOQs of 10 µg L-1 or less for 82.8 % of the pesticides. Almost twice as many active substances had an LOQ of 1 µg L-1 or less when the evaporation method was used. Some pesticides exhibited poor recovery or high variance caused by volatilization or degradation during the evaporation step. This behavior was evidenced by the case of thiophanate-methyl, which is degraded to carbendazim. Figure Sampling method by dilution or evaporation in the multiresidue determination of pesticides in essential oils by LC/MS
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