

MULTIRESIDUE DETERMINATION OF FUNGICIDE RESIDUES IN WINE (CV.TANNAT) AND BLUEBERRIES, AS EXAMPLES OF HIGH POLIPHENOLIC CONTENT MATRICES

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Most of the employed pesticides in vineyards and blueberry crops are fungicides that are used to protect them against the serious infection agent *Botrytis cinerea*. They belong to different chemical families: anilinepyrimidine: pyrimethanil, dicarboximides: iprodione, boscalid, strobilurins: trifluoxystrobin, pyraclostrobin and hidroxianalides: fenhexamid. Poliphenolic compounds, which are present in both tannat wine and blueberries, have similar physicochemical and solubility properties to those of the studied fungicides. Thereby, the aim is to selectively eliminate these compounds still obtaining high recoveries of the pesticides. Modern trends in analytical chemistry are to miniaturize the analytical procedure and to determine in one chromatographic run as many compounds as possible. The application of this concept minimizes costs, time and makes the analysis environmentally friendly. Following this idea, several multiresidue extraction procedures have been compared in order to determine Thiabendazol, Azoxystrobin, Pyrimethanil, Fludioxonil, Kresoxim methyl, Tebuconazol, Pyraclostrobin, Imazalil, Fenhexamid and Boscalid simultaneously by LC-DAD. Modifications of different methodologies were evaluated for both matrices in order to minimize the poliphenolic matrix effect, based on SPE extraction[1], dispersive solid phase clean-ups (QuEChERS[2] or AcOEt based extraction[3]) and dispersive liquid-liquid micro extraction[4]. Linearity, accuracy and matrix effect have been evaluated. Dispersive methods yielded better recoveries than SPE, being higher than 70% for most of the studied fungicides. Approximately 80% of the pesticides can be quantified at 0.1 mg / (L or Kg). Taking into account that the MRLs established in the Codex Alimentarius for “small berries” are above 1 mg / Kg for all the investigated fungicides, the LOQs of the adjusted methods in the present communication are good enough for regulatory purposes.

References:

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