DETERMINATION OF 64 ORGANOCHLORINE, ORGANONITRGEN AND ORGANOPHOSPHORUS PESTICIDES IN OLIVE OIL BY OPTIMIZED QUECHERS PROCEDURE

This poster describes an optimized QuEChERS procedure for the determination of multi-class pesticide residues in olive oil. High performance liquid chromatography (LC)-MS/MS analysis was carried out on a Restek® Rxi-5sil MS 30m*0.25mm*0.25um column with an Agilent 6420 MS equipped with an ESI source. Concentration of the pesticide residues were done by applying vacuum of 5” mercury. Concentrations were measured by applying vacuum of 5” mercury. Concentrations were measured by HPLC-MS/MS method. High performance liquid chromatography (LC)-MS/MS analysis was carried out on a Restek® Rxi-5sil MS 30m*0.25mm*0.25um column with an Agilent 6420 MS equipped with an ESI source. Concentration of the pesticide residues were done by applying vacuum of 5” mercury. Concentrations were measured by HPLC-MS/MS method.

**INTRODUCTION**

Optimized QuEChERS procedure for the determination of multi-class pesticide residues in olive oil.

**PROCEDURES**

1. Without clean-up: Transfer 5 mL of the extract into a 6 mL test tube, concentrate it to 3 mL with nitrogen at 35 ºC.
2. Clean-up with endcapped C18 SPE column: Pass about 6 mL of the extract through a C18 SPE column, recover the extract by applying vacuum of 5” mercury. Concentrate to 0.5 mL with nitrogen at 35 ºC.

**RESULTS**

- Effect of oil ratios on analyte recoveries, endcapped C18 column was used for clean-up.
- Effect of acetic acid on analyte recovery, dSPE and PSA/C18 columns were used for clean-up.
- Decrease olive oil ratio resulted in significant decrease of recoveries and did not harm the GC column. Clean-up with PSA/C18 SPE column removed most co-extractives and thus protected GC system from contamination by non-volatile extractables. Accuracy, precision and method detection limit studies were carried out under optimized conditions.

**CONCLUSION**

An optimized QuEChERS procedure was developed using UCT’s 50 mL QuEChERS tube and PSA/C18 dual-layer SPE column for the determination of multi-class pesticide residues in olive oil. This procedure can be used for other matrices with high lipid content.