



QuEChERS in Brief

The QuEChERS method was developed several years ago by M. Anastassiades, et al, at the USDA ARS Eastern Regional Research Center in Wyndmoor, PA, and since then, there have been adaptations and modifications. UCT provides current products for protocols from S. Lehotay and F. Schenck, and custom products can be made available. This note will summarize some of the main concepts of the extraction method leading to the clean-up step. For more detailed information, please contact one of the aforementioned scientists or send a detailed query to techsupportenviro@unitedchem.com.

UCT provides a variety of QuEChERS products containing primary secondary amine (PSA), C18, magnesium sulfate anhydrous and graphitized carbon black. These products are used in the method's clean-up step. Bulk, pre-cleaned magnesium sulfate anhydrous is available for the extraction part of the method.

PSA is used to remove various polar organic acids, polar pigments, some sugars and fatty acid co-extractables from QuEChERS extracts. Combined with C18, samples containing less than 1% lipids can be cleaned of most lipids and sterols. Graphitized carbon is used to remove sterols and pigments such as chlorophyll. The downside to carbon is its ability to retain planar molecules. Schenck and Vega (April 2001) reported that 3/1 acetone: toluene performed well at eluting many compounds from carbon.

Reagents

1% Acetic Acid in Acetonitrile
Sodium Acetate anhydrous
Magnesium Sulfate anhydrous
UCT QuEChERS product

Procedure

1. Transfer 15 g of homogenized sample into a 50 ml FEP centrifuge tube.
2. Add 15 ml of 1% acetic acid in acetonitrile, 1.5 g sodium acetate anhydrous, 6 g of UCT magnesium sulfate anhydrous and an internal standard.
3. Shake vigorously for 1 minute.
4. Centrifuge for 3 minutes at 3700 rpm.
5. Transfer an aliquot of the supernatant to the UCT product.
6. Shake for 1 minute.
7. Centrifuge for 3 minutes at 3700 rpm.
8. Analyze.

References

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For more information, including validation data, please visit www.quechers.com.