



Analysis of Amphetamines from Whole Blood using Solid Supported Liquid Extraction (SLE) and LC/MS/MS

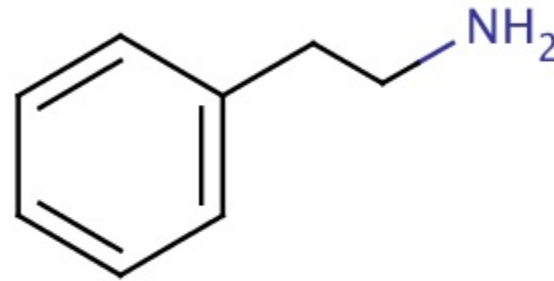
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Outline

- Extraction Method
- Instrumental Method
- Analytical Performance

Amphetamines

- Common phenethylamine backbone
- One of the most commonly abused drugs in the world
- Impaired effects such as central nervous system stimulation, hallucinations, and peripheral vasoconstriction



Postmortem Toxicology

- Whole Blood
- Urine
- Vitreous Humor
- Tissue

Extraction Method for Whole blood

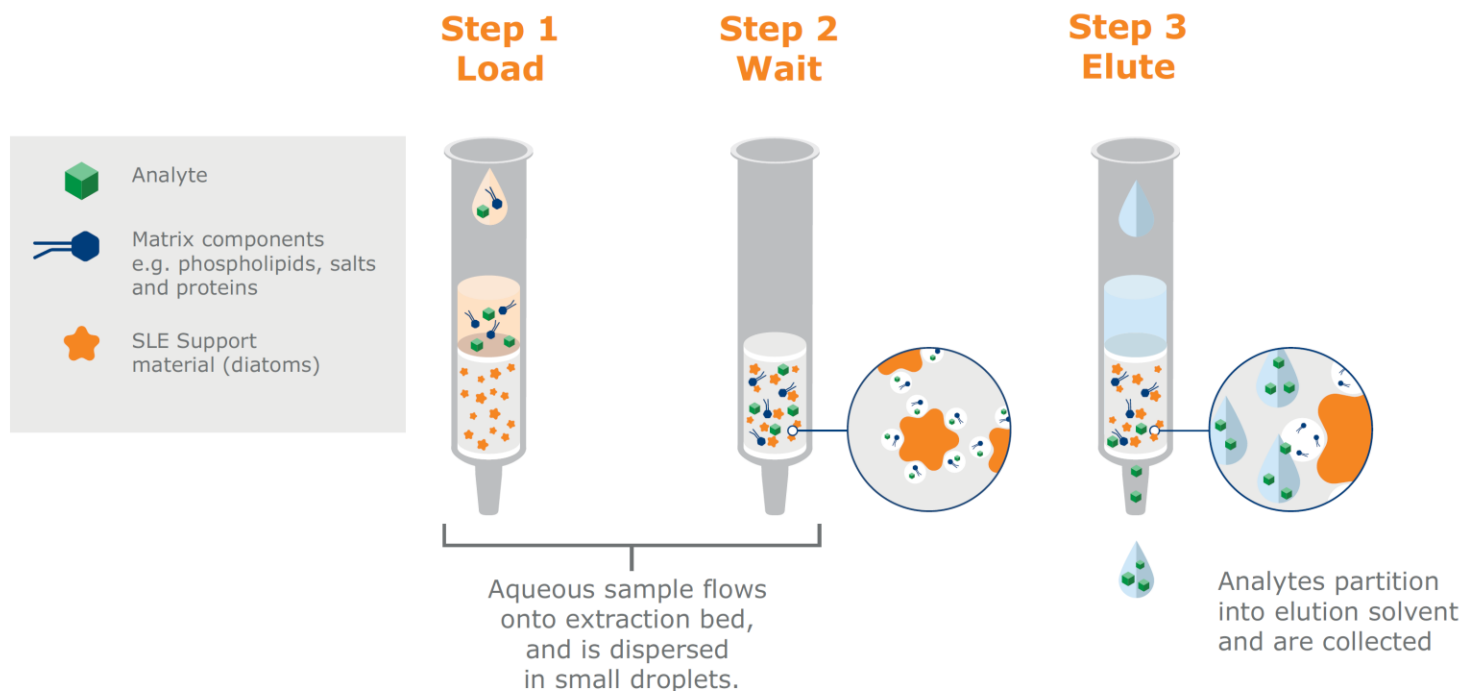
- Liquid Liquid Extraction (LLE)
- Solid Phase Extraction (SPE)
- Supported Liquid Extraction (SLE)

Supported Liquid Extraction (SLE)

- Simple and fast
- No emulsion formation and sample loss during liquid transfers in the LLE
- No extra conditioning and washing steps typically used in SPE

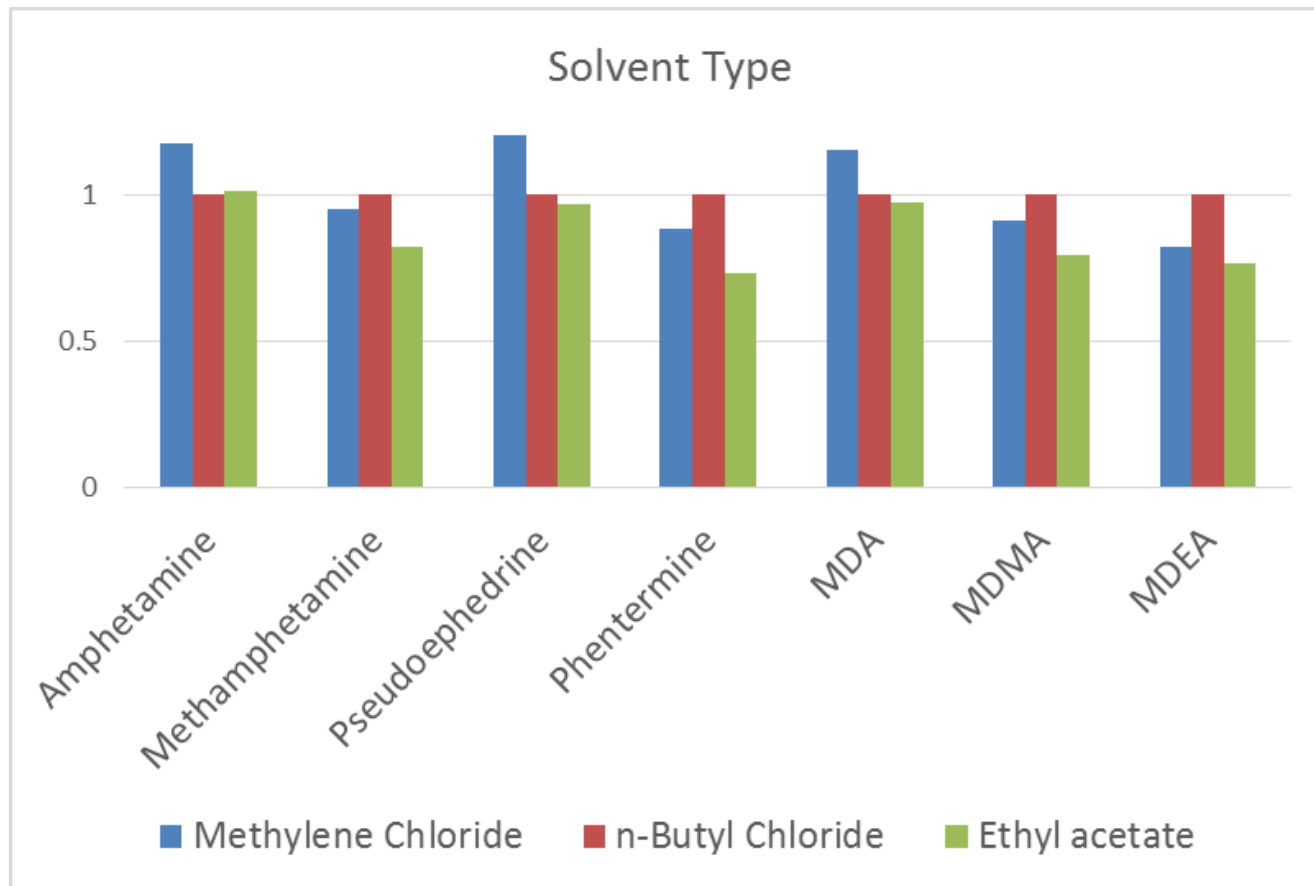
Supported Liquid Extraction (SLE)

- ISOLUTE HM-N SLE
 - Modified form of diatomaceous earth
 - Remove phospholipids, salts and proteins



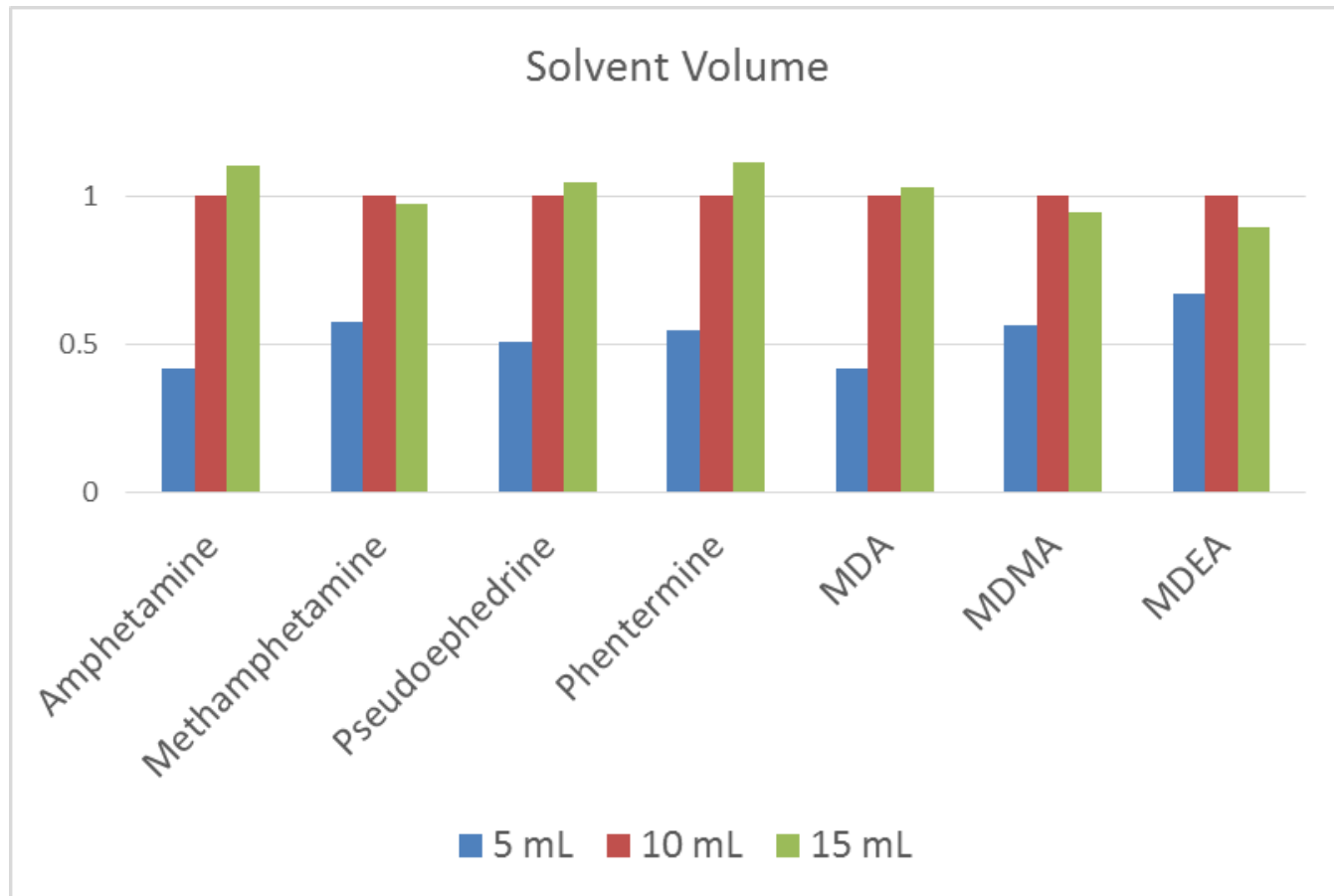
Extraction Optimization

- Extraction Solvent



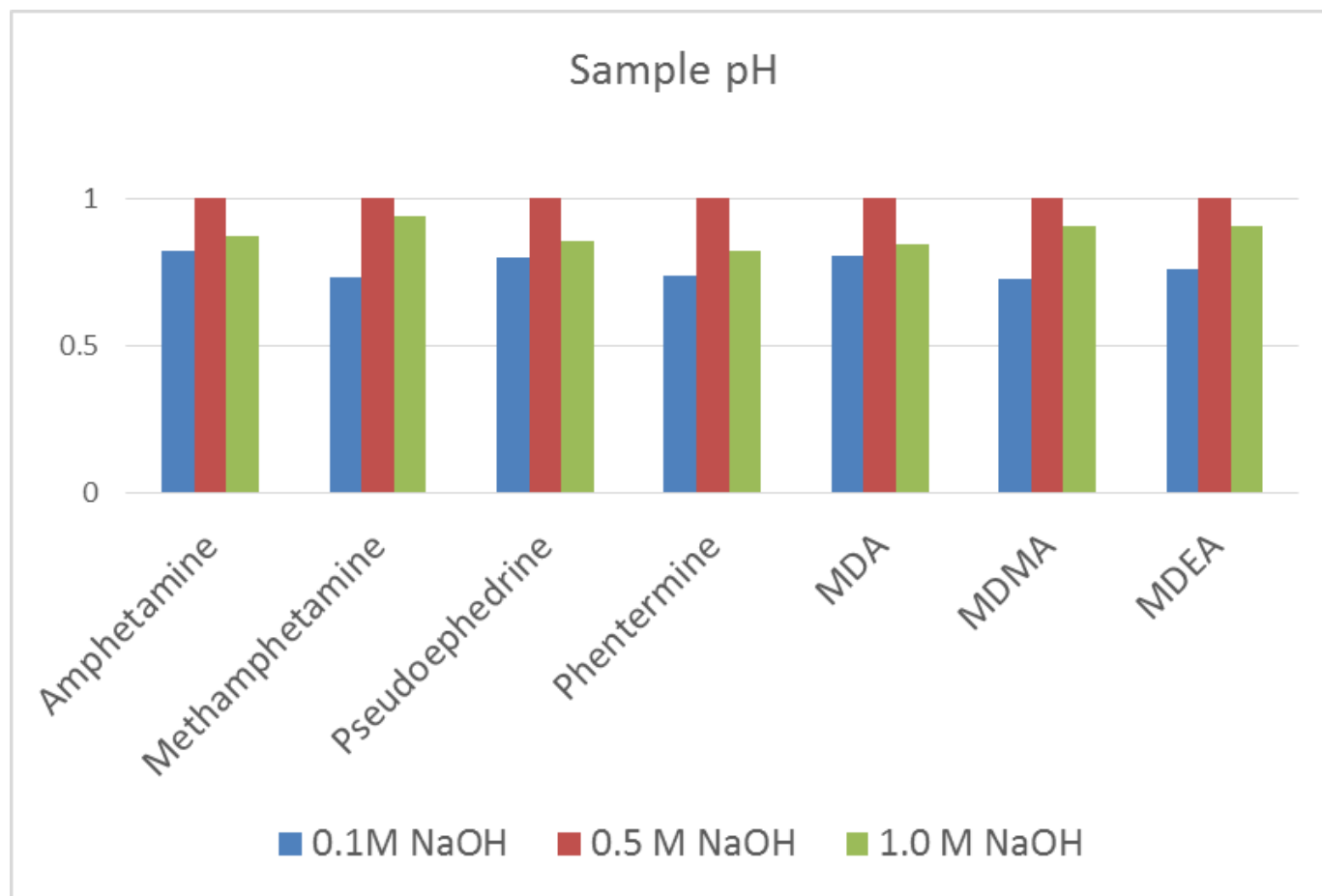
Extraction Optimization

- Extraction Solvent



Extraction Optimization

- Sample pH

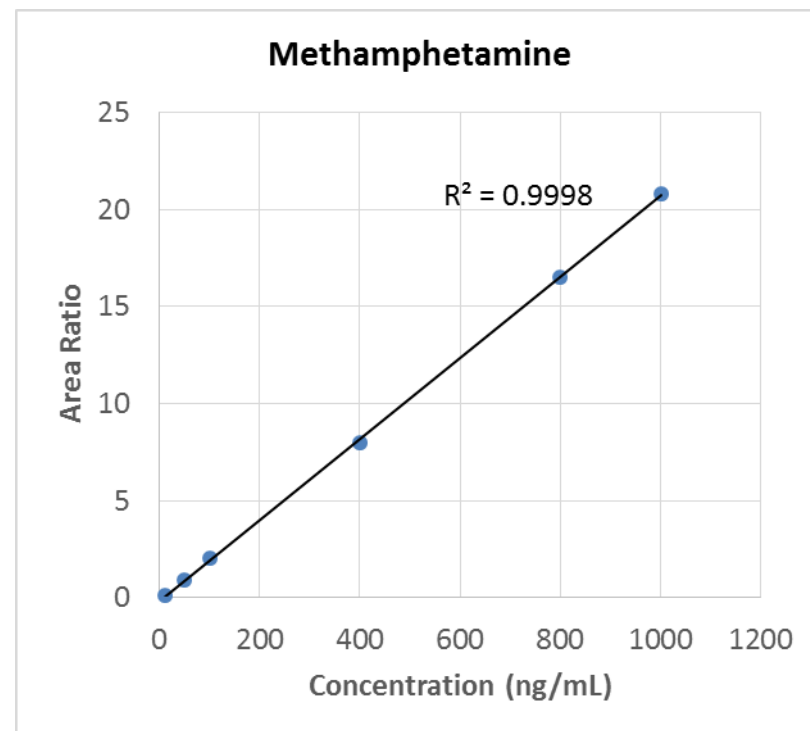
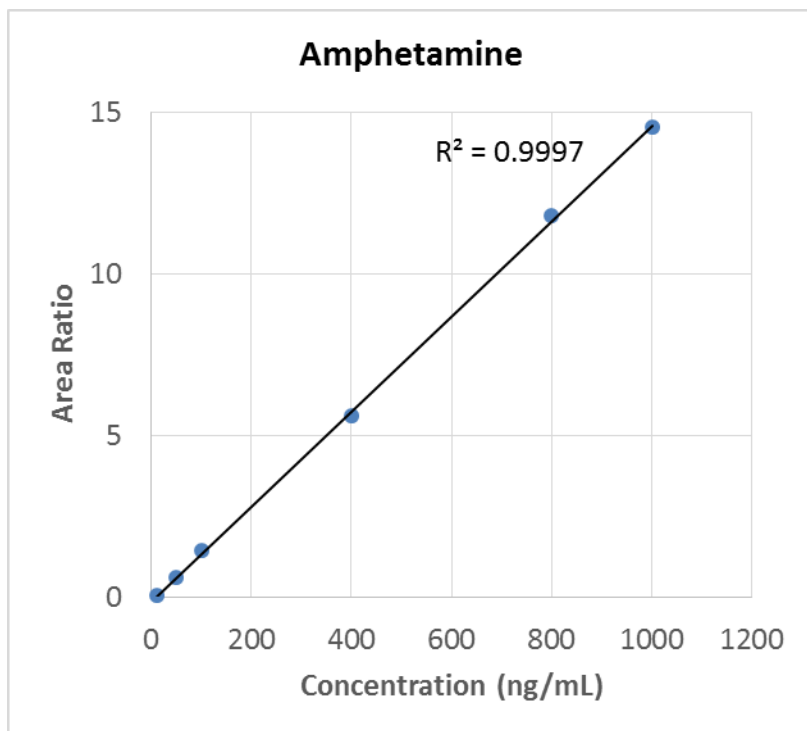


LC/MS/MS System

Thermo Scientific TSQ Vantage triple stage quadrupole mass spectrometer



Calibration Curve



Analytical Performance

	Amphetamines
Linear range (ng/mL)	10 - 1000
Correlation coefficient (R²)	> 0.99
Limit of Detection (ng/mL)	5 or 10 ng/mL
Recoveries (%)	76 - 91
Ion suppressions (%)	< 10%

Summary

- Simple and quick SLE extraction method for amphetamines from whole blood
- Sensitive and fast method for quantification of amphetamines by LC/MS/MS
- Application for the forensic and clinical analyses of amphetamines

Thank you!