

A Rapid Extraction Method for Alcohol Markers from Hair Samples.

Hair

CASE STUDY

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Introduction

The 2014 Society of Hair Testing (SoHT) consensus has highlighted EtG as the first choice marker for abstinence assessment and also for proving chronic excessive alcohol consumption in child custody cases. Currently EtG samples are incubated in a sonication bath overnight to extract the analytes from the hair samples, meaning that turnaround time is significantly increased compared to other assays within the laboratory.

Overview

- **Keywords:** Hair grinding, EtG extraction, toxicology, GC-MS
- **Aim of the study:** Ethyl Glucuronide extraction from hair samples
- **Application:** LC-MS/MS
- **Sample name:** Hair
- **Material:** FastPrep-24™ instrument, steel and/or ceramic banded beads
- **Buffer:** Deionized water

Protocol and Parameters

1. Cut 75 mg of hair samples into 3-6 cm sections
2. Put the cut hair samples into 2 mL tubes containing steel and/or ceramic beads
3. Add deionized water
4. Load the tubes in a FastPrep-24™ instrument and process 2 x 1 min at speed setting of 6.0 m/s

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Results

More effective results for downstream applications

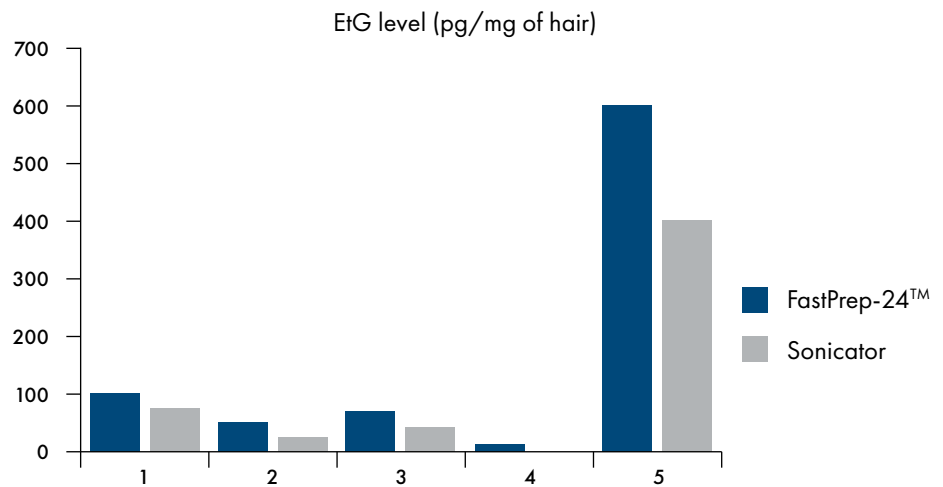


Standard Method (Chopped Hair)



Ground Hair

Up to 114% improved EtG Recovery over a Sonicator!



Conclusion

- The use of a Fastprep-24™ benchtop homogenizer reduced the extraction time for Ethyl Glucuronide (EtG) from overnight to just 40 seconds in hair samples.
- Grinding hair samples with the FastPrep-24™ system has a clear advantage over simply cutting hair in terms of EtG recovery.
- The added cost of consumables and equipment is mitigated by the dramatic reduction in extraction time and improvement in extraction recovery.