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Plant extraction for LC-MS Analysis

Forked from Lyophilized plant extraction for LC-MS Analysis

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Protocol status: Working
We use this protocol and it's working

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Abstract

This protocol describes a rapid and efficient method for extracting metabolites from lyophilized plant material for LC-MS analysis. Samples are homogenized, extracted with ethanol–water, dried, and reconstituted in water–acetonitrile before final centrifugation and transfer to LC-MS vials. The method is optimized for small-scale use and ensures compatibility with LC-MS workflows.

Attachments

PNG

Workflow.png
4.4MB

Materials

Solvents

- DMSO
- CH_3CN:H_2O (50:50)

Experimental Supplies

- 2.0 ml Eppendorf tubes
- LC-MS vials
- Stainless Steel grinding beads
- Dry ice

Labels

- For weighted material
- For LC-MS vials

Instruments

- Analytical balance
- Analytical mill
- Thermal mixer
- TissueLyser
- Pipette (10–1000 µL) + tips
- Centrifuge
- Vortex
- LC-MS system

Plant collection, transportation, lyophilisation

1 Collect a portion of fresh plant material (leaf, root, stem, flower, fruit) into a 50 mL Falcon tube

2 Close the tubes tightly

3 Put the tubes in dry ice immediately for transportation to the lab

4 Unscrew the tubes

5 Cover the top and sides with one piece of thin net fabric

6 Attach the fabric to the tube with a rubber band

7 Insert the tubes into the lyophiliser flasks

8 Run the lyophilisation for 3 days (follow lyophiliser instructions)

9 Insert all the lyophilised material into a lab grinder

10 Grind the material to obtain a powder

11 Store the material in dry room in a tightly closed Falcon tube.

Plant extraction

4h 45m

12 Weight **25 ± 2.5 mg** of lyophilized plant material into a 2.0 Eppendorf tube with round bottom

20m

13 Add a metal bead to each tube 30s

14 Homogenize in TissueLyser **30 sec, 25 rpm** 30s

15 Add **2 000 µL** of DMSO (HPLC grade) and vortex to mix 10m

16 Incubate **3 min** at **40 °C** 3m

17 Homogenise in TissueLyser **60 sec, 25 rpm** 1m

18 Centrifuge **5 min**, **14 000 rpm** 5m

19 Transfer **10 µL** of supernatant into LC-MS vials with insert and add **90 µL** of CH3CN-H2O solution (50:50, v/v) 20m