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(-)-α-Bisabolol GC sample preparation

Forked from [\(E\)-α-bisabolene GC sample preparation](#)

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ABSTRACT




This is a quick guide for the preparation of (-)-α-bisabolol samples and external standards in dodecane for GC analysis. This protocol has been established in the Lindberg lab at Ångström laboratory (Uppsala University) for direct analysis of dodecane-based *ex-situ* extracts from cyanobacterial strains producing (-)-α-bisabolol.

The protocol includes the preparation of stock solutions for the internal standard β-caryophyllene (BCP) and the external standard. The preparation of a fresh external standard series is suggested for each sample analysis. The calibration curve is required for quantification of (-)-α-bisabolol in the samples of interest.

This protocol is used in combination with the following GC protocol:

[dx.doi.org/10.17504/protocols.io.kj2cuqe](https://doi.org/10.17504/protocols.io.kj2cuqe)

MATERIALS

NAME 	CATALOG # 	VENDOR 
β-Caryophyllene ≥80%, FCC, FG	W225207	Sigma Aldrich
HPLC/GC Vials 1.5 mL clear glass	548-1488	Vwr
Dodecane Reagent Grade ≥99%	D221104	
Patchouli alcohol primary reference standard	5986-55-0	Sigma Aldrich

Preparation of BCP (β -caryophyllene) internal standard (IS) stocks

1

	BCP Standard		
Stock A	1: 10 Dilution from Original BCP Stock ($\Rightarrow 89 \text{ mg} \cdot \text{mL}^{-1}$)		
	↓		
Stock B	281 μL Stock A + 719 μL dodecane ($\Rightarrow 25 \text{ mg} \cdot \text{mL}^{-1}$)	\Rightarrow	1: 100 to samples (2 μL + 198 μL sample)
	↓		
Stock C	200 μL Stock B ad 19,8 mL Dodecane ($\Rightarrow 250 \text{ } \mu\text{g} \cdot \text{mL}^{-1}$)	\Rightarrow	use for preparation of α -bisabolene external standard (ES) series

Store Stocks in the fridge at $\sim 4^\circ\text{C}$



Dodecane is toxic! Wear protective gloves and goggles. Work under the fume hood, or use a respirator!
<https://pubchem.ncbi.nlm.nih.gov/compound/dodecane#section=Handling-and-Storage>

Preparation of (-)- α -Bisabolol standard stocks

2

	(-)- α - bisabolol standard		
Stock L-I 200 μL	1:100 dilution from original Stock ($\Rightarrow 9.2 \text{ } \mu\text{g}/\mu\text{L}$ in Stock C)		
	↓		
Stock L-II 2 mL	174 μL Stock L-I + 1826 μL Stock C ($\Rightarrow 800 \text{ } \mu\text{g} \cdot \text{mL}^{-1}$)		



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Preparation of (-)- α -Bisabolol calibration curve

3 Example: (-)- α -bisabolol external standard (ES) dilution series:

0; 12.5; 25; 50; 100; 200; 400; 800 $\mu\text{g} \cdot \mu\text{L}^{-1}$

High Range Dilution Series:			
	Vol. Stock L-II	Vol. Stock C	Transfer to vial (3 x)
800 $\mu\text{g} \cdot \text{mL}^{-1}$	600	0	200
400 $\mu\text{g} \cdot \text{mL}^{-1}$	325	325	200
200 $\mu\text{g} \cdot \text{mL}^{-1}$	162,5	487,5	200
100 $\mu\text{g} \cdot \text{mL}^{-1}$	81,25	568,75	200
50 $\mu\text{g} \cdot \text{mL}^{-1}$	40,625	600	200
25 $\mu\text{g} \cdot \text{mL}^{-1}$	20,3125	629,6875	200
12.5 $\mu\text{g} \cdot \text{mL}^{-1}$	10,15625	639,84375	200
0 $\mu\text{g} \cdot \text{mL}^{-1}$	0,0	600	200
Sum	1229,6875	2610,9375	



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Preparation of biological (-)- α -Bisabolol samples (in dodecane)

- 4
 - pipette 198 μL sample to GC vial
 - add each 2 μL **Stock B**



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