

Welcome to the new PubMed. For legacy PubMed go to [pubmed.gov](https://pubmed.gov).

U.S. National Library of Medicine  
National Center for Biotechnology Information

Log in

Search

Advanced

Search results

Save

Email

...

[Xenobiotica](#), 48 (11), 1089-1097 Nov 2018

## The Impact of Sesquiterpenes $\beta$ -Caryophyllene Oxide and Trans-Nerolidol on Xenobiotic-Metabolizing Enzymes in Mice in Vivo

Kateřina Lněničková<sup>1</sup>, Hana Svobodová<sup>1</sup>, Lenka Skálová<sup>1</sup>, Martin Ambroř<sup>1</sup>, Filip Novák<sup>1</sup>, Petra Matouřková<sup>1</sup>

Affiliations expand

PMID: 29098926 DOI: [10.1080/00498254.2017.1398359](https://doi.org/10.1080/00498254.2017.1398359)

Full-text links

Cite

### Abstract

1. Sesquiterpenes, constituents of plant essential oil, are popular bioactive compounds due to the positive effect on human health, but their potential toxicity and possible herb-drug interactions are often omitted. In our in vivo study, we followed up the effect of p.o. administration of two sesquiterpenes  $\beta$ -caryophyllene oxide (CAO) and trans-nerolidol (NER) on various xenobiotic-metabolizing enzymes in mice liver and small

RESULT  
6 of 190

RESULT  
8 of 190

intestine. To spot the early effect of studied compounds, enzymatic activity and mRNA levels were measured 24 h after single dose. 3. CAO and NER markedly increased cytochromes P450 2C19 and 2C9 mRNA levels in both tissues. Liver also showed elevated activity of aldo-ketoreductase and carbonyl reductase after treatment. Contrary, sesquiterpenes decreased NAD(P)H:quinone

Feedback

oxidoreductase 1 activity in small intestine. Among conjugation enzymes, only liver sulfotransferase activity was increased by sesquiterpenes. 4. Our results document that single dose of sesquiterpenes modulate activities and expression of several xenobiotic-metabolizing enzymes.

**Keywords:** Cytochrome P450; drug-metabolizing enzyme; enzyme induction; terpenes.

## Sesquiterpenes Are Agonists of the Pregnane X Receptor but Do Not Induce the Expression of Phase I Drug-Metabolizing Enzymes in the Human Liver

M Šadibolová et al. *Int J Mol Sci* 20 (18). 2019. PMID 31540101.

Sesquiterpenes, the main components of plant essential oils, are bioactive compounds with numerous health-beneficial activities. Sesquiterpenes can interact with concomit ...

## Nerolidol and Farnesol Inhibit Some Cytochrome P450 Activities but Did Not Affect Other Xenobiotic-Metabolizing Enzymes in Rat and Human Hepatic Subcellular Fractions

A Špičáková et al. *Molecules* 22 (4). 2017. PMID 28338641.

Sesquiterpenes, 15-carbon compounds formed from three isoprenoid units, are the main components of plant essential oils. Sesquiterpenes occur in human food, but they are ...

## The Inhibitory Effects of $\beta$ -Caryophyllene, $\beta$ -Caryophyllene Oxide and $\alpha$ -Humulene on the Activities of the Main Drug-Metabolizing Enzymes in Rat and Human Liver in Vitro

LT Nguyen et al. *Chem Biol Interact* 278, 123-128. 2017. PMID 29074051.

Sesquiterpenes, the main components of plant essential oils, are often taken in the form of folk medicines and dietary supplements. Several sesquiterpenes possess interes ...

## Dietary Flavonoids: Effects on Xenobiotic and Carcinogen Metabolism

YJ Moon et al. *Toxicol In Vitro* 20 (2), 187-210. Mar 2006. PMID 16289744. - *Review*

Flavonoids are present in fruits, vegetables and beverages derived from plants (tea, red wine), and in many dietary supplements or herbal remedies including Ginkgo Biloba ...

## Drug Metabolizing Enzymes in Lymphocytes

JL Raucy et al. *J Biochem Mol Toxicol* 13 (3-4), 223-6. 1999. PMID 10098909. - *Review*

[Show more similar articles](#)

[See all similar articles](#)

**Cited by** 1 PubMed Central articles

## Sesquiterpenes Are Agonists of the Pregnane X Receptor but Do Not Induce the Expression of Phase I Drug-Metabolizing Enzymes in the Human Liver

M Šadibolová et al. *Int J Mol Sci* 20 (18). 2019. PMID 31540101.

Sesquiterpenes, the main components of plant essential oils, are bioactive compounds with numerous health-beneficial

activities. Sesquiterpenes can interact with concomit ...

## MeSH terms

[Aldehyde Reductase / metabolism](#)  
[Animals](#)  
[Cytochrome P-450 Enzyme System / genetics](#)  
[Cytochrome P-450 Enzyme System / metabolism](#)  
[Enzymes / metabolism](#)  
[Estradiol Dehydrogenases / metabolism](#)  
[Gene Expression Regulation, Enzymologic / drug effects](#)  
[Inactivation, Metabolic / drug effects](#)  
[Intestine, Small / drug effects](#)  
[Intestine, Small / enzymology](#)  
[Liver / drug effects](#)  
[Liver / enzymology](#)  
[Male](#)  
[Mice, Inbred Strains](#)  
[NAD\(P\)H Dehydrogenase \(Quinone\) / metabolism](#)  
[Polycyclic Sesquiterpenes](#)  
[Sesquiterpenes / pharmacology](#)  
[Sesquiterpenes / toxicity](#)

## Substances

[Enzymes](#)  
[Polycyclic Sesquiterpenes](#)  
[Sesquiterpenes](#)  
[Cytochrome P-450 Enzyme System](#)  
[Akr1a1 protein, mouse](#)  
[Aldehyde Reductase](#)  
[AKR1C13 protein, mouse](#)  
[Estradiol Dehydrogenases](#)  
[NAD\(P\)H Dehydrogenase \(Quinone\)](#)  
[Nqo1 protein, mouse](#)  
[nerolidol](#)  
[caryophyllene oxide](#)

## LinkOut - more resources

## Full Text Sources

[Taylor & Francis](#)

Search result 7 of 190 for [(nerolidol[Text Word]) AND (metabolize[Text Word])] OR [(nerolidol[Text Word]) AND (metabolism[Text Word])]

## Previous result

**Nerolidol** exhibits antinociceptive and anti-inflammatory activity: involvement of the GABAergic system and proinflammatory cytokines.

Fonsêca DV, et al. *Fundam Clin Pharmacol* 2016.

In the hot-plate test, **nerolidol** did not alter latency at any of the observed time points. Motor coordination, evaluated through the rotarod test, was not hindered in animals treated with **nerolidol**. ...Treatment with **nerolidol** reduced carrageenan-induced paw edema. In the model of carrageenan-induced peritonitis, **nerolidol** decreased the influx of polymorphonuclear cells and also reduced levels of tumor necrosis factor (TNF- $\alpha$ ) in peritoneal lavage. ...

## Next result

**Nerolidol** ameliorates cyclophosphamide-induced oxidative stress, neuroinflammation and cognitive dysfunction: Plausible role of Nrf2 and NF- $\kappa$ B.

Iqbal A, et al. *Life Sci* 2019.

**Nerolidol** (NER) is a lipophilic bioactive molecule with antioxidant and anti-inflammatory properties but it has not been explored for neuroprotective potential in CP-induced neurotoxic manifestations. ...

[Blog](#)

[Support Center](#)

## National Center for Biotechnology Information

8600 Rockville Pike  
Bethesda, MD 20894

### Popular

[PubMed](#)  
[PubMed Central](#)  
[Bookshelf](#)  
[PubChem](#)  
[Gene](#)

### Resources

[Literature](#)  
[Health](#)  
[Genomes](#)  
[Genes](#)  
[Proteins](#)

### Actions

[Submit](#)  
[Download](#)  
[Learn](#)  
[Develop](#)  
[Analyze](#)

[About us](#) [Contact us](#) [Policies](#) [FOIA](#)

[BLAST](#)

[Chemicals](#)

[Research](#)

[Nucleotide](#)

[Protein](#)

[GEO](#)

[NLM](#) | [NIH](#) | [HHS](#) | [USA.gov](#)