



Tea Tree Oil

Revised: April 15, 2023.

CASRN: 68647-73-4; 85085-48-9

Drug Levels and Effects

Summary of Use during Lactation

Tea tree (*Melaleuca alternifolia*) oil contains primarily terpinen-4-ol, but more than 100 other constituents have been identified, including 1,8-cineole (eucalyptol). Tea tree oil should not be confused with cajeput oil, niauouli oil, kanuka oil, or manuka oil which are obtained from other *Melaleuca* species. Other than eucalyptol, no data exist on the excretion of components of tea tree oil into breastmilk or on the safety and efficacy of tea tree oil in nursing mothers or infants. Topical tea tree oil is generally well tolerated, but should not be taken orally. Tea tree oil is usually used topically for the treatment of infections and has been used for prophylactic treatment of the nipples postpartum.[1] However, tea tree oil has estrogenic and antiandrogenic activity and numerous cases of breast enlargement in boys have been reported.[2-5] The relevance of these findings has been questioned,[6-9] but no further testing has been reported to confirm or refute the findings. Topical application around the breast should be avoided unless it is thoroughly removed before nursing.

Dietary supplements do not require extensive pre-marketing approval from the U.S. Food and Drug Administration. Manufacturers are responsible to ensure safety, but do not need to *prove* the safety and effectiveness of dietary supplements before they are marketed. Dietary supplements may contain multiple ingredients, and differences are often found between labeled and actual ingredients or their amounts. A manufacturer may contract with an independent organization to verify the quality of a product or its ingredients, but that does *not* certify the safety or effectiveness of a product. Because of the above issues, clinical testing results on one product may not be applicable to other products. More detailed information [about dietary supplements](#) is available elsewhere on the LactMed Web site.

Drug Levels

Maternal Levels. Twelve nursing mothers who were 19 weeks to 19 months postpartum ingested 100 mg of 1,8 cineole (eucalyptol) in the form of delayed-release capsules (Soledum-Klosterfrau Vertriebs GmbH, Germany) that release the drug in the intestine. Then they pumped 1 to 4 milk samples at the time they perceived the smell of eucalyptus on their breath which had been previously shown to be approximately concurrent. A total of 21

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milk samples were obtained. Odor was rated by a panel of 3 to 5 experts as either smelling like eucalyptus or not. Fourteen of the samples had a distinct eucalyptus-like odor. Chemical analysis of the positive odor tests found 1,8-cineole in concentrations from 70 to about 2090 mcg/kg of milk, most in the range of 100 to 500 mcg/kg of milk. Samples with negative odor tests contained concentrations in the range of 0.98 to about 20.23 mcg/kg of milk. In one woman who donated 3 samples, the highest concentration of 71 mcg/kg occurred at 1.5 hours after ingestion, with concentrations of 1 mcg/kg before ingestion and 15 mcg/kg at 9.5 hours after ingestion.[3]

Eight women had their milk analyzed for 1,8-cineole metabolites. Ten metabolites and several enantiomers of these metabolites were detected.[10,11]

Eighteen nursing mothers who were nursing their infants of 8 to 53 weeks of age were served a curry dish that contained an average of 394 mcg of 1,8-cineole. Baseline 1,8-cineole concentrations in milk averaged 1.44 mcg/L (range 0.07 to 7.57 mcg/L). Milk samples contained 1,8-cineole in concentrations of 0.19 to 7.41 mcg/L at 1 hour after eating, 0.33 to 7.86 mcg/L at 2 hours after eating and 0.22 to 3.33 mcg/L at 3 hours after eating.[12]

Infant Levels. Relevant published information was not found as of the revision date.

Effects in Breastfed Infants

Nursing mothers who were participating in an experiment on the excretion of 1,8-cineole (eucalyptol) in breastmilk took a 100 mg capsule of 1,8-cineole orally. Although instructed not to, 12 mothers breastfed their infants during the experiment. Mothers reported that none of their infants refused their milk or breastfed less than usual. Two mothers felt that their infants were more agitated a few hours after breastfeeding. A third mother reported that the infant stopped nursing from time to time and "looked puzzled", but resumed nursing. Upon repeating the experiment 6 weeks later, the infant did not react in an unusual way during breastfeeding.[3]

Effects on Lactation and Breastmilk

Relevant published information was not found as of the revision date.

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Substance Identification

Substance Name

Tea Tree Oil

Scientific Name

Melaleuca alternifolia

CAS Registry Number

68647-73-4; 85085-48-9

Drug Class

Breast Feeding

Lactation

Milk, Human

Anti-Infective Agents, Local

Complementary Therapies

Oils

Phytotherapy

Plants, Medicinal