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[Exp Appl Acarol](#), 73 (3-4), 385-399 Dec 2017

## Toxicity of Juniperus Oxycedrus Oil Constituents and Related Compounds and the Efficacy of Oil Spray Formulations to Dermatophagoides Farinae (Acari: Pyroglyphidae)

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### Abstract

The American house dust mite (AHDM), *Dermatophagoides farinae* Hughes (Acari: Pyroglyphidae), is recognized as an important source of allergens in the domestic environment. This study was conducted to determine whether 19 constituents from essential oil of cade, *Juniperus oxycedrus* L. (Cupressaceae), eight structurally related compounds, and another 16 previously known cade oil constituents were toxic for adult

RESULT  
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to determine the route of acaricidal action of the test compounds, as well as to assess the efficacy of four experimental spray formulations containing the oil (10-40 mg/L sprays). In a circle contact mortality bioassay, methyleugenol (LD<sub>50</sub>, 5.82 µg/cm<sup>2</sup>) and guaiacol (8.24 µg/cm<sup>2</sup>) were the most toxic compounds against the mites, and the toxicity of these compounds and benzyl benzoate was also evaluated.

RESULT  
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Feedback

significantly differ. High toxicity was also observed with eugenol, m-cresol, and nerolidol (LD<sub>50</sub>, 12.52-19.52 µg/cm<sup>2</sup>), and these compounds were significantly more toxic than N,N-diethyl-3-methylbenzamide (DEET) (LD<sub>50</sub>, 37.67 µg/cm<sup>2</sup>). Cade applied as 30 or 40 mg/L experimental sprays provided 96 and 100% mortality against the mites, respectively, whereas permethrin (cis:trans, 25:75) 2.5 g/L spray treatment resulted in 17% mortality. In vapor-phase mortality tests, the compounds described were consistently more toxic in closed versus open containers, indicating that toxicity was achieved mainly through the action of vapor.

Reasonable mite control in indoor environments can be achieved by spray formulation containing the 40 mg/L cade oil as potential contact-action fumigants.

**Keywords:** Botanical acaricide; Cade oil; Dermatophagoides farinae; Juniperus oxycedrus; Natural fumigant; Spray formulation.

### [Toxicity of Basil Oil Constituents and Related Compounds and the Efficacy of Spray Formulations to Dermatophagoides Farinae \(Acari: Pyroglyphidae\)](#)

H Perumalsamy et al. *J Med Entomol* 51 (3), 650-7. May 2014. PMID 24897858.

Pyroglyphid house dust mites are the most common cause of allergic symptoms in humans. An assessment was made of the toxicity of basil, *Ocimum basilicum* L, essential oil, ...

### [Toxicity of Hiba Oil Constituents and Spray Formulations to American House Dust Mites and Copra Mites](#)

JR Kim et al. *Pest Manag Sci* 71 (5), 737-43. May 2015. PMID 24916027.

Reasonable mite control in indoor environments can be achieved by a spray formulation containing the 30 g L(-1) hiba oil as a potential contact-action fumigant.

### [Contact and Fumigant Toxicity of Pinus Densiflora Needle Hydrodistillate Constituents and Related Compounds and Efficacy of Spray Formulations Containing the Oil to Dermatophagoides Farinae](#)

JH Lee et al. *Pest Manag Sci* 69 (6), 696-702. Jun 2013. PMID 23109302.

In the light of global efforts to reduce the level of highly toxic synthetic acaricides in indoor environments, RPN-HD and the compounds described merit further study as ...

### [Toxicity of Spray and Fumigant Products Containing Cassia Oil to Dermatophagoides Farinae and Dermatophagoides Pteronyssinus \(Acari: Pyroglyphidae\)](#)

SI Kim et al. *Pest Manag Sci* 62 (8), 768-74. Aug 2006. PMID 16786540.

The toxicity of formulations of oil of cassia, *Cinnamomum cassia* Blume, (20 and 50 g L(-1) sprays and 100% oil-based fumigant) to adult *Dermatophagoides farinae* Hughes an ...

### [Final Report on the Safety Assessment of Juniperus Communis Extract, Juniperus Oxycedrus Extract, Juniperus Oxycedrus Tar, Juniperus Phoenicea Extract, and Juniperus Virginiana Extract](#)

*Int J Toxicol* 20 Suppl 2, 41-56. 2001. PMID 11558640. - *Review*

The common juniper is a tree that grows in Europe, Asia, and North America. The ripe fruit of *Juniperus communis* and

Juniperus oxycedrus is alcohol extracted to produce J ...

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## MeSH terms

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## Previous result

Effect of **nerolidol** on cyclophosphamide-induced bone marrow and hematologic **toxicity** in Swiss albino mice.

Iqbal A, et al. *Exp Hematol* 2020.

**Nerolidol** (NER) is a lipophilic, bioactive sesquiterpene reported to have neuroprotective, cardioprotective, gastroprotective, and renal protective potential, but its myeloprotective potential is underexplored. ...

## Next result

Topical **Toxicity** Profiles of Some Aliphatic and Aromatic Essential Oil Components Against Insecticide-Susceptible and Resistant Strains of German Cockroach (Blattodea: Ectobiidae).

Oladipupo SO, et al. *J Econ Entomol* 2019.

**Toxicity** profiles of four aliphatic ( $\alpha$ -pinene, cyclononane, limonene, **nerolidol**), four aromatic ( $\beta$ -thujaplicin, carvacrol, eugenol, tropolone) essential oil components (EOCs), and permethrin were investigated against three strains of German cockroach, *Blattella germanica* (L.). ...**Toxicity** of aliphatic EOCs correlated positively with their molecular weight against strain E only, whereas both molecular weight and vapor pressure of aromatic EOCs correlated significantly with **toxicity** in all strains. ...

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