

Floral Attractants, Repellents, and Insecticides Fact Sheet

Summary

The substances described here are natural substances isolated from flowers and other parts of plants. All of them have distinctive odors that give them their attractant and repellent properties. As pesticides, these chemical substances attract and kill insects, repel insects, and help keep cats and dogs away from places where they're not wanted. When used as directed on the product labels, these natural chemicals do not present risks to humans, pets, or the environment.

I. Description of the Active Ingredient

The substances described here are volatile chemicals with distinct scents. They are present in natural oils, and contribute to the characteristic scents of orange, lemon, and cinnamon oils, among others. (See Plant Oils Fact Sheet). No risks are associated with use of these natural substances in food or elsewhere. In fact, the chemicals are considered so safe that there generally is no need to set an upper limit on the amounts that can be found in food.

However, these chemicals are often used in bait traps that also contain toxic chemicals to kill the trapped insects. Therefore, instructions on the bait products need to be followed carefully to ensure they are used safely

II. Use Sites, Target Pests, and Application Methods

- **Use sites:** Many agricultural uses, and other outdoor and indoor sites. See Table for specifics.
- **Actions on target pests:** Various actions and target pests, depending on chemicals and their formulation:
 - Repel dogs and cats
 - Attract insect pests to traps
 - Repel insect pests
 - Kill insect pests.
- **Application methods:** The application method depends on the use:
 - The chemicals are used as bait in insect traps;
 - Dry forms mixed with toxic chemicals are spread in soil for corn rootworms;
 - Pellets repel dogs and cats;
 - Some chemicals are used in flea shampoos and flea sprays for pets.

III. Assessing Risks to Human Health

No adverse effects to humans are expected from use of these substances in pesticide products. Most of these substances are found in common foods, and many are approved as food flavorings by FDA.

IV. Assessing Risks to the Environment

No risks to the environment are expected from use of these natural fragrances in pesticide products.

V. Regulatory Information

See Table.

VI. Producer Information

Many companies have received registrations for fragrances derived from flowers and other parts of plants.

VII. Additional Contact Information

[Ombudsman, Biopesticides and Pollution Prevention Division](#) (7511P)
Office of Pesticide Programs
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SUMMARY OF INFORMATION FOR SELECTED SCENTED PLANT CHEMICALS THAT ARE ACTIVE INGREDIENTS IN PESTICIDE PRODUCTS

PLANT CHEMICAL (No. of Products) <i>Natural source</i>	USE SITES	ACTIONS ON TARGET PESTS	OPP # (CAS #)	REGISTERED/ REREGISTERED (YEAR)
Cinnamaldehyde (6)* <i>Ceylon and Chinese cinnamon oils</i>	Many food crops; Cotton; Ornamentals; Processed foods	Attracts corn rootworms and the corresponding beetles;** Repels dogs and cats; Controls fungi and insects	040506 (104-55-2)	1994

Eugenol (17) <i>Oil of cloves</i>	Many food crops; Ornamentals; Buildings: inside and outside; Pets	Attracts Japanese beetles; Kills insects	102701 (97-53-0)	1972/1993
Geraniol (9) (Isomeric with linalool) <i>Oil of rose</i>	Fruits; Vegetables; Ornamentals; Homes; Garbage dumps	Attracts Japanese beetles; Repels dogs and cats	597501 (106-24-1)	1972/1993
<u>Indole</u> (2)* <i>All plants</i>	Fruits; Vegetables; Corn for feed and food	Attracts corn rootworms and the corresponding beetles.**	025000 (120-72-9)	1994
Ionone, alpha (2) <i>Many food plants containing beta-carotene</i>	Outdoors only. Apply to plants and inanimate objects, e.g., lawn furniture.	Ingredient in dog/cat repellent; Attracts adult rose chafers (a beetle).	129030 (127-41-3)	1972
Linalool (14) (3,7-Dimethyl-1,6-octadien-3-ol) (Isomeric with geraniol) <i>Oil of Ceylon cinnamon, sassafras</i>	Dog and cat flea sprays; Carpets	Repels insects (mosquitoes, fleas), mites, ticks, spiders	128838 (78-70-6)	1985
<u>1-Octen-3-ol</u> (3) <i>Clover, alfalfa, other plants</i>	Used with electronic insect killers. Non-agricultural sites only.	Attracts mosquitoes and dragonflies to electronic insect killers	069037 (3391-86-4)	1996
2-Phenylethyl-propionate (13) <i>Peanuts</i>	Food and feed crops; Ornamentals; Various indoor and outdoor sites	Attracts Japanese beetles; Kills insects, mites, ticks, spiders, etc.	102601 (122-70-3)	1979 (exempt from reregistration)
1,2,4-Trimethoxybenzene (2) <i>Squash flowers</i>	Fruit, vegetable, and feed crops	Attracts corn rootworms and cucumber beetles**	040515 (135-77-3)	1994