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PRODUCT INFORMATION

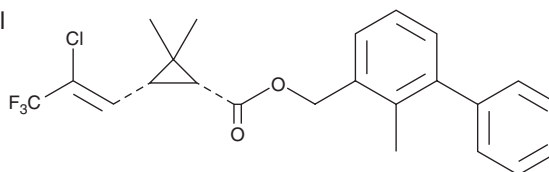


Bifenthrin

Item No. 24057

CAS Registry No.: 82657-04-3
Formal Name: (1R,3R)-*rel*-3-[(1Z)-2-chloro-3,3,3-trifluoro-1-propen-1-yl]-2,2-dimethylcyclopropanecarboxylic acid, (2-methyl [1,1'-biphenyl]-3-yl)methyl ester

Synonym: (±)-Bifenthrin
MF: C₂₃H₂₂ClF₃O₂
FW: 422.9
Purity: ≥98%
Supplied as: A solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Bifenthrin is supplied as a solid. A stock solution may be made by dissolving the bifenthrin in the solvent of choice, which should be purged with an inert gas. Bifenthrin is slightly soluble in chloroform and methanol.

Description

Bifenthrin is a synthetic pyrethroid insecticide that prolongs opening of sodium channels resulting in membrane depolarization and conductance block in the insect nervous system.¹ It is effective against *A. gambiae* and *C. quinquefasciatus* mosquitos (LD₅₀s = 0.15 and 0.16 ng/mg, respectively) and increases *O. insidiosus* mortality in treated corn and sorghum plants.^{2,3} Bifenthrin exhibits aquatic toxicity, inducing reproductive defects and lethality in *D. magna* (LC₅₀ = 12.4 µg/L).⁴ Acute oral administration of bifenthrin induces fine tremor, decreases motor activity and grip strength, and increases pawing and head shaking behaviors in rats, indicating typical Type I pyrethroid neurotoxicity.⁵ Bifenthrin (8 mg/kg) also decreases locomotor activity, induces anemia, elevates white blood cell counts, alanine transaminase (ALT), and superoxide dismutase (SOD), as well as decreases glutathione peroxidase (Gpx) activity in mice.⁶

References

1. Choi, J.S. and Soderlund, D.M. Structure-activity relationships for the action of 11 pyrethroid insecticides on rat Na_v1.8 sodium channels expressed in *Xenopus* oocytes. *Toxicol. Appl. Pharmacol.* **211(3)**, 233-244 (2006).
2. Al-Deeb, M.A., Wilde, G.E., and Zhu, K.Y. Effect of insecticides used in corn, sorghum, and alfalfa on the predator *Orius insidiosus* (Hemiptera: Anthocoridae). *J. Econ. Entomol.* **94(6)**, 1353-1360 (2001).
3. Hougard, J.-M., Duchon, S., Zaim, M., et al. Bifenthrin: A useful pyrethroid insecticide for treatment of mosquito nets. *J. Med. Entomol.* **39(3)**, 526-533 (2002).
4. Ye, W.H., Wen, Y.Z., Liu, W.P., et al. Effects of bifenthrin on *Daphnia magna* during chronic toxicity test and the recovery test. *J. Environ. Sci. (China)* **16(5)**, 843-846 (2004).
5. Wolansky, M.J., McDaniel, K.L., Moser, V.C., et al. Influence of dosing volume on the neurotoxicity of bifenthrin. *Neurotoxicol. Teratol.* **29(3)**, 377-384 (2007).
6. Nieradko-Iwanicka, B., Borzecki, A., and Jodlowska-Jedrych, B. Effect of subacute poisoning with bifenthrin on locomotor activity, memory retention, haematological, biochemical and histopathological parameters in mice. *J. Physiol. Pharmacol.* **66(1)**, 129-137 (2015).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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