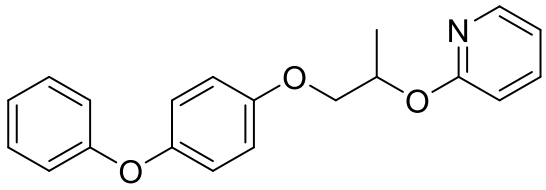
Product data sheet

MedKoo Cat#: 596349 Name: Pyriproxyfen CAS#: 95737-68-1 Chemical Formula: $C_{20}H_{19}NO_3$ Exact Mass: 321.1365 Molecular Weight: 321.374	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Pyriproxyfen is an insect growth regulator; a juvenile hormone analog and insect growth regulator used to control insects by disrupting metamorphosis. Has been effective in controlling mosquito larvae.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	64	199.15
Ethanol	64	199.15

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.11 mL	15.56 mL	31.12 mL
5 mM	0.62 mL	3.11 mL	6.22 mL
10 mM	0.31 mL	1.56 mL	3.11 mL
50 mM	0.06 mL	0.31 mL	0.62 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Faria Waziry PA, Raja A, Salmon C, Aldana N, Damodar S, Fukushima AR, Mayi BS. Impact of pyriproxyfen on virus behavior: implications for pesticide-induced virulence and mechanism of transmission. Virol J. 2020 Jul 6;17(1):93. doi: 10.1186/s12985-020-01378-y. PMID: 32631404; PMCID: PMC7339562.
2. Bayoumi AE, Pérez-Pertejo Y, Zidan HZ, Balaña-Fouce R, Ordóñez C, Ordóñez D. Cytotoxic effects of two antimolting insecticides in mammalian CHO-K1 cells. Ecotoxicol Environ Saf. 2003 May;55(1):19-23. doi: 10.1016/s0147-6513(02)00068-4. PMID: 12706389.

In vivo study

1. Horie Y, Mitsunaga K, Yap CK. Pyriproxyfen influences growth as well as thyroid hormone-related and gh/igf-1 gene expression during the early life stage of zebrafish (Danio rerio). Comp Biochem Physiol C Toxicol Pharmacol. 2023 Jul;269:109632. doi: 10.1016/j.cbpc.2023.109632. Epub 2023 Apr 17. PMID: 37075951.
2. Azevedo RDS, Falcão KVG, Assis CRD, Martins RMG, Araújo MC, Yogui GT, Neves JL, Seabra GM, Maia MBS, Amaral IPG, Leite ACR, Bezerra RS. Effects of pyriproxyfen on zebrafish brain mitochondria and acetylcholinesterase. Chemosphere. 2021 Jan;263:128029. doi: 10.1016/j.chemosphere.2020.128029. Epub 2020 Aug 23. PMID: 33297050.

7. Bioactivity

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Biological target:

Pyriproxyfen is a pyridine insecticide that mimics juvenile growth hormone, which prevents larvae from developing into reproduction-capable adults. The LD50 of pyriproxyfen in rats is >5,000 mg/kg, >1,300 mg/cubic meter/4 hours, and >2,000 mg/kg through oral, inhalation, or percutaneous dosing, respectively. In addition, in zebrafish, even very high doses (0.1 μg/ml, compared with 0.01 μg/ml used in practice for pest control) pyriproxyfen does not induce microcephaly or other brain malformations.

In vitro activity

Pyriproxyfen boosted vesicular stomatitis virus replication, altered cell membranes, and promoted the formation of large extracellular vesicles containing both the virus and mitochondria. While its impact on cell viability varied across cell types, it increased viability in Jurkat cells but decreased it when combined with vesicular stomatitis virus, hinting at a disruption of mammalian cell lipid environments that affect viral replication.

Reference: Virol J. 2020 Jul 6;17(1):93. https://pubmed.ncbi.nlm.nih.gov/32631404/

In vivo activity

In zebrafish exposed to 56.6 μg/L pyriproxyfen, thyroid hormone receptor β gene expression stayed the same, but thyroid-stimulating hormone β subunit, iodtyronin deiodinase 2, and thyroid hormone receptor α gene expression decreased significantly compared to the control group. In zebrafish exposed to higher pyriproxyfen concentrations (111.7 or 250.7 μg/L), iodtyronin deiodinase 1 gene expression significantly increased. This suggests that pyriproxyfen disrupts thyroid hormone function and hinders zebrafish growth.

Reference: Comp Biochem Physiol C Toxicol Pharmacol. 2023 Jul;269:109632. https://pubmed.ncbi.nlm.nih.gov/37075951/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.