

# Anthelmintic

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**Anthelmintics** or **antihelminthics** are a group of antiparasitic drugs that expel parasitic worms (helminths) and other internal parasites from the body by either stunning or killing them and without causing significant damage to the host. They may also be called **vermifuges** (those that stun) or **vermicides** (those that kill). Anthelmintics are used to treat people who are infected by helminths, a condition called helminthiasis. These drugs are also used to treat infected animals.

Pills containing anthelmintics are used in mass deworming campaigns of school-aged children in many developing countries.<sup>[1][2]</sup> For example, the treatment of choice for soil-transmitted helminths is mebendazole and albendazole<sup>[3]</sup> and praziquantel for schistosomiasis.<sup>[4]</sup>



Anthelmintic effect of papain on *Heligmosomoides bakeri*.

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## Types

Antiparasitics that specifically target *Ascaris* worms are called ascaricides.

- Benzimidazoles:
  - Albendazole – effective against threadworms, roundworms, whipworms, tapeworms, hookworms
  - Mebendazole – effective against pinworms, roundworms and hookworms
  - Thiabendazole – effective against roundworms, hookworms
  - Fenbendazole – effective against gastrointestinal parasites
  - Triclabendazole – effective against liver flukes
  - Flubendazole – effective against most intestinal parasites
- Abamectin – effective against most common intestinal worms, except tapeworms, for which praziquantel is commonly used in conjunction with abamectin
- Diethylcarbamazine – effective against *Wuchereria bancrofti*, *Brugia malayi*, *Brugia timori*, tropical pulmonary eosinophilia, loiasis

- Ivermectin – effective against most common internal parasites (except tapeworms)
- Suramin – It is used for treatment of human sleeping sickness caused by trypanosomes
- Pyrantel pamoate – effective against most nematode infections
- Levamisole
- Salicylanilides:
  - Niclosamide – effective against tapeworms
- Nitazoxanide – effective in vitro against a wide range of helminths with clinical efficacy against *Ascaris lumbricoides*,<sup>[5]</sup> and *Cyclospora cayentanensis*<sup>[6]</sup>
  - Oxyclozanide – effective against liver flukes
- Praziquantel – effective against cestodes (i.e., tapeworms), some trematodes
- Octadepsipeptides (e.g.: Emodepside) – effective against a variety of gastrointestinal helminths
- Aminoacetonitrile derivatives e.g., Monepantel : effective against a variety of gastrointestinal roundworms including those resistant to other anthelmintic classes
- Spiroindoles (e.g., derquantel): effective against a range of gastrointestinal roundworms including those resistant to other anthelmintic classes
- Pelletierine sulphate effective against diverse tapeworms, ring worms and nematodes.<sup>[7]</sup>

## Anthelmintic resistance

The ability of parasites to survive treatments that are generally effective at the recommended doses is a major threat to the future control of worm parasites in small ruminants and horses. This is especially true of nematodes, and has helped spur development of aminoacetonitrile derivatives for treatment against drug-resistant nematodes, as well as exploration of antibiotics use against their endosymbiotic *Wolbachia* bacteria.

The resistance is measured by the "fecal egg count reduction" value which varies for different types of helminths.<sup>[8]</sup>

Treatment with an antihelminthic drug kills worms whose phenotype renders them susceptible to the drug, but resistant parasites survive and pass on their "resistance" genes. Resistant varieties accumulate and finally treatment failure occurs.

## See also

- *Dysphania ambrosioides*

## References

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## External links

- Anthelmintics ([https://www.nlm.nih.gov/cgi/mesh/2011/MB\\_cgi?mode=&term=Anthelmintics](https://www.nlm.nih.gov/cgi/mesh/2011/MB_cgi?mode=&term=Anthelmintics)) at the US National Library of Medicine Medical Subject Headings (MeSH)
- Holden-Dye, L. and Walker, R.J. Anthelmintic drugs ([http://www.wormbook.org/chapters/www\\_anthelminticdrugs/anthelminticdrugs.html](http://www.wormbook.org/chapters/www_anthelminticdrugs/anthelminticdrugs.html)) (November 2, 2007), WormBook, ed. The *C. elegans* Research Community, WormBook, doi/10.1895/wormbook.1.143.1

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