

Scope of pharmacology in fishes.  
Route of Administration and Method  
of application to fish. Source of  
Drugs.

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# Introduction and scope

- Aquaculture remains a growing, vibrant and important food production sector. However, disease outbreaks have disrupted aquaculture production, often with severe socio-economic and ecological consequences.
- Anti-microbial chemotherapy has been used in aquaculture for over past 60 years and discovery of new and effective anti-microbial agents have changed the microbial virulence and severity of disease, leading to a dramatic reduction in morbidity and mortality, and contributing to significant advances in the health of the general population.
- Anti-microbials are used both as prophylactic, at times of heightened risk of disease and as therapeutic, when an outbreak of disease occurs in the system.

- There are several anti-microbials drugs used for fish health management however, information on anti-microbial used in aquaculture and pharmacokinetics and pharmacodynamics of administration is very limited.
- In recent years, the issues relating to antibacterial use in animal food is under severe scientific and public scrutiny due to human health concern. Besides providing protection against microbial infection, chemotherapy may complicate health management by triggering toxicity, resistance, residues and occasionally public health and environmental consequences.
- Therefore, highly efficient and relatively safer drug is required to develop with the emphasis on prevention, which is likely to be more cost-effective than cure, which will reduce the possible problems associated with excessive use anti-microbials

# Methods of Administration

- **Topical applications**
- The simplest and most direct method of treating fishes is to apply the drug directly to the body surfaces. Wound, skin ulceration and localized infections or traumas may be treated by this method by using a concentrated solution of a suitable chemical usually an oxidizing agent, disinfectant or antiseptic

- **Administration by bath**
- Virtually every drug available is water soluble compound designed to be added to the aquarium.
- Moreover, the commercial fish farmers and hatchery operators has somewhat wider range of choice with oral and injection medication however, he is still bound to the ease and lower cost of administration

- **Oral administration**
- The oral administration of medication can save much time and effort when utilized in the treatment and in hatcheries and pond culture, where large numbers of fish are involved medicated feed are extensively used to combat systemic infections as a prophylaxis and to stimulate growth in food fishes

- **Parenteral (injection) administration**
- The metabolic processes of fish are associated with their poikilothermic nature. Their heart muscle and associated chambers do not pump blood reliably or strongly as it happens in advanced vertebrates. Their muscle tissue is poorly vascularised, which slows down the diffusion into the system