

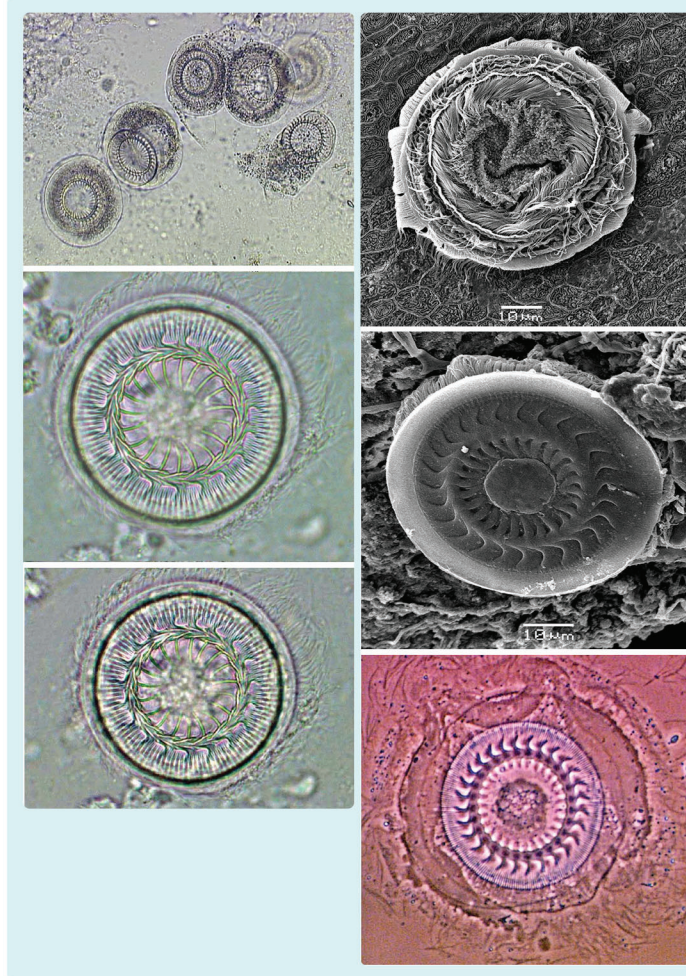
The day after treatment, sample a small number of fish taking skin scrapes or removing some gill filaments and examining the fresh preparations under a microscope. Screen the preparation looking for *Trichodina*. If the formalin treatment has been successful, you may see no live *Trichodina*. If you see less than 10 *Trichodina* per field of view when you look at the slide preparation using a x4 magnification then this is acceptable, however, it is recommended that you monitor the number of *Trichodina* and do not allow them to rise. The regular screening of young fish from hatcheries and nurseries is particularly important.

Citation:

The content in this leaflet was distilled down from an email exchange series between a large commercial tilapia farm in Africa suffering from heavy juvenile tilapia mortalities occurring as a result of a suspected parasite infection and Prof. Andy Shinn, Benchmark Holdings, Warren Turner, Nam Sai Farms and Don Griffiths, MYSAP Inland Team Leader following the uploading of the MYSAP Inland publication *Practical training manual: Tilapia breeding and all-male fry production* onto the WorldFish website in October 2020.

The parasite infection was confirmed to be *Trichodina* and recommendations provided remotely to treat the parasite infection were successful.

Trichodina montage



Images courtesy of Giuseppe Paladini and Andy Shinn

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MYSAP

Myanmar Sustainable Aquaculture Programme
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Trichodina a common fish parasite in freshwater ponds



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Trichodina a common fish parasite in freshwater ponds

Trichodina spp. are commonly encountered protozoans which can be naturally free-living and which feed on organic material in the water, including in fish ponds.

In the free-living form *Trichodina* can be found in the water column grazing on organic water such as sloughed epidermal cells, etc. It is not uncommon to find *Trichodina* on fish and when numbers are low, they do not seriously cause fish mortality or impact on fish production.

If the organic content of the water increases, then favourable conditions can be created for *Trichodina* to reproduce by binary fission - splitting into two. When this happens *Trichodina* can and often do switch from a scavenging mode, feeding on dead material released by fish, to becoming more destructive parasites actively feeding on the epidermis of fish that can depress fish production in aquaculture ponds and can cause fish mortalities. Their presence on very small fish in hatcheries though should not be ignored and their numbers carefully monitored.

Prevention is better than cure

Reduce the organic load in the water by one of the following options:

- Reducing stocking density of fish where possible.
- Ensure that feed is used effectively so that uneaten feed wastes are reduced, e.g. by using feeding trays.
- Where possible increase water flow through the pond system.
- If net hapas are used to hold fish stocks, exchange the net hapas, clean and sun dry them to reduce the organic load of benthos on the hapa material.
- Filter water entering the pond or farm system to reduce the number of protozoans entering the system.

How to treat if fish are dying because of high Trichodina loads

To reduce parasite loads quickly when fish are dying from *Trichodina*, two treatments can be considered. The safest option is to use a continuous salt bath at 5 parts per thousand (5 ppt). A long time and a low salt dose is much better than high salt dose for a short period and is less stressful for the fish. Please note however that there are many species of *Trichodina*, that can be found on fresh, brackish and marine species of fish; different species may, therefore respond differently to the salt treatment. Alternatively, use 25 ppm formalin for one hour.

Have a trial run first to test the dose and duration

Mix sodium chloride into a bucket to make a 5 ppt concentration. This would be 50 g of sodium chloride in 10 litres of water. Provide a battery operated aerator and air stones into the bucket to increase the dissolved oxygen level. Add 5 small fish into the salt solution, cover the top with a net to stop the fish jumping out. Leave them for 24 hours, but observe them regularly to make sure they are not overly stressed. After 24 hours, check the fish and assess the burden of *Trichodina* on each fish. If the number of *Trichodina* have not reduced, then consider a 25 ppm formalin treatment, this is 2.5 ml of 10% formalin in 10 litres or 0.25 ml of formaldehyde in 10 litres. When treating with formalin it is important that you have aeration and that you stay with the fish while they are in treatment and you have everything ready to move the fish quickly into clean water and with minimal stress if they show any signs of distress.

If the bucket trial goes well, then a larger trial can be conducted using either tarpaulin sheets with a wood or bamboo pole frame or in the back of a pick-up truck, or in concrete tanks.

It is critical during the treatments that the fish are not too crowded and are calm and not stressed.

Watch out for signs of fish stress during the treatment. Signs include darkening of the fish colour, increased opercular rates (gills opening and closing more rapidly) and fish thrashing about. If signs of stress are seen immediately stop the treatment and move the fish back to clean, fresh aerated water. Have your emergency plan for moving the fish prepared.