

# BULLETIN

SUMMER 2017



**FEDERATION OF BRITISH  
AQUATIC SOCIETIES**  
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**NEWS, VIEWS AND ARTICLES  
BY FISHKEEPERS FOR FISHKEEPERS**



**FEDERATION OF BRITISH  
AQUATIC SOCIETIES**

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# **QUARTERLY BULLETIN**

**SUMMER 2017**

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**Edited, published and produced for the FBAS website by Les Pearce**

# EDITORIAL

Welcome to the Summer 2017 edition of the Bulletin. There are some outstanding items inside - something of interest for everybody.

Dr David Pool gives some invaluable tips and information to help you ensure your fish are kept safe and healthy while you are away on holiday.

Some of the mysteries of the Indian Almond leaves and their use are unravvelled by Amy Lim who also suggests various methods for their use.

In the 'Green Corner' there is also some important information regarding non-native species of plants.

Please, please keep the articles and information coming in. Anything that you think may be of interest to fellow fishkeepers is always welcome. You can contact me or send articles using the details below.

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We regret to announce the passing of Dr Herbert Axelrod, the renowned aquatic author, publisher and ichthyologist.

Herbert Axelrod probably did more for the worldwide aquatic hobby than any other person through his publishing company TFH (Tropical Fish Hobbyist - what else?).

He visited the UK on several occasions and was Guest of the FBAS whenever he was here.

# HOLIDAY FISH

**Dr DAVID POOL**



How are your plans going for your forthcoming holiday in the sun? Are you looking forward to it? As a fish owner the pleasure can be marred by the thoughts of how your pets are going to survive when you are away.

Fishkeepers are fortunate in that, providing a few simple rules are followed, their fish can safely be left for a few days, or even a couple of weeks with no adverse effects.



## **Preparation.**



The aim is for a healthy, balanced aquarium. If everything is stable and running smoothly on the day that you leave you have the best chance of finding that all is well on your return.

Start four weeks before your departure date. From then until you leave, don't add any new fish or plants. Such moves could affect the harmony between existing fishes, upset the biological balance between filter and stock level, or result in an outbreak of a disease.

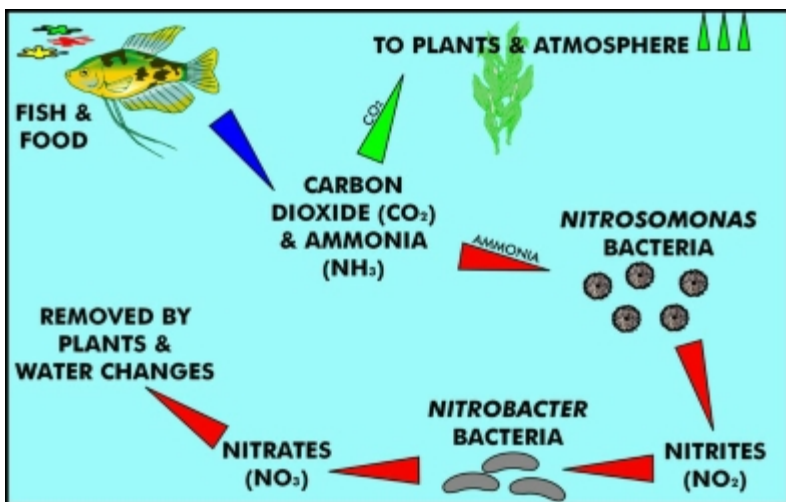
The risk of infection is perhaps the greatest to consider. Symptoms may not appear by the time you pack your cases, but white spot, for example, could

spread from new fish to others in the tank while you are away causing poor health and even fish losses. If one fish dies while you are away and the body starts to decompose it will have major affects on the water quality, with elevated levels of ammonia and nitrite which could have disastrous consequences. It is just not worth the risk.

## Water Changes

Routine maintenance is important at all times, of course, but never more so than in the weeks leading up to your holiday. 2 – 3 weeks before you depart a large partial water change and general clean up is advisable. Change 25 – 30% of the water and remove any debris that has accumulated in the tank and gravel. Using a gravel cleaner is the perfect way to get excess debris out from amongst the aquarium substrate. Also look to remove any dead leaves and clean algae from the aquarium glass.

Give your filter a clean as well. Rinsing the filter media in old aquarium water will remove excess debris and ensure that no areas are blocked. As always, don't use tap water for this as the chlorines and chloramines will kill helpful filter bacteria and lead to nitrogen cycle problems.



**THE NITROGEN CYCLE**

Replacement tap water should be the same temperature as that in the aquarium and have been conditioned to remove harmful chlorine/chloramine and other contaminants.

These measures will result in a healthy and clean set up. One week before you

leave a second smaller water change and clean up is recommended, just to ensure that everything is perfect in the aquarium. This will be far less time consuming than the previous activities – an important thing to bear in mind as you start getting all of the other things ready for your holidays.

## Feeding

The greatest concern amongst aquarists and pond keepers is that their fish will starve whilst they are away. It is easy to panic, leaving last minute instructions for a friend or neighbour – or adding more food than usual in the day or so before departure to build up the fishes food reserves.

Fish are able to tolerate long periods without food. This happens naturally in the wild, during the hot dry season for some tropical species, or during the winter in the UK when little food is available.

In any case, your aquarium and pond fish will not be starved while you are away. Algae, plants, insect larvae and snails are all present in most aquaria and ponds and will provide emergency rations should they be needed. It is often surprising how clean and free of algae an aquarium or pond can be when you return from a few days break. Don't forget that your fish will also have internal stored reserves in layers of fat and muscle which they can very effectively utilise.

Despite the above, we don't want our fish to be hungry while we are away and there are a few alternatives to providing food:

**Neighbourly help.** Getting a friend or neighbour to look after your fish is a great idea – but make sure that they know how much food to give. Non fish keepers tend to feed too much which can be disastrous for water quality, so it is important to stress the importance of not overfeeding. Show them how







much to feed or, better still, measure out the daily ration into small containers. Getting them to feed the fish once very two days is a good idea and will provide more than enough food to keep your fish healthy.

*“Measure out the daily ration into small containers.”*

Even if you don't ask them to feed your fish, having a friend or neighbour call in to see the fish on an occasional basis while you are away is a good idea – just to check everything is working ok, with no dead fish, the filter working ok etc.

**Automatic feeders.** There are some excellent automatic feeders available which will feed the fish at preset intervals. Once a day is ideal and err on the side of feeding less at each meal than you would normally. It is advisable to try them out before you go away – feeding the fish for a few days and ensuring everything runs smoothly.



### **Holiday foods.**

Fish will happily survive for 1 – 2 days without any food. If you are away for longer than this you can add holiday foods to provide small amounts of food. 'Chalk block' style holiday foods are readily available, but have very little food content. Tablet or gel based alternatives are probably better, but aggressive feeders can sometimes eat everything in the first few days.

**Fry are the exception.** They require regular small feeds if they are to grow and develop normally. Some auto feeders can handle powdered foods, but it is worth checking that they function effectively before you go away. A fishkeeping friend is invaluable if you are feeding live foods as they will be able to look after the fry effectively. If you can, it is worth avoiding having fry in the weeks before you are away.

## Lighting

If you have living plants, lighting is essential rather than being mere decoration.

Investing in a timer is advisable to ensure they get the light that they require to remain healthy. Trimming the plants during the aquarium maintenance a week or so before you go away is advisable. If you are away for several weeks the plants may have grown excessively, but can generally be trimmed and brought under control easily when you get back. If you have no plants, or only artificial ones, it is better to leave the lights off. Leaving the curtains open will ensure that the aquarium gets some light on a daily basis which will be appreciated by the fish.



## Neighbours and Friends

Despite the best-laid plans and precautions, disasters can happen. The heater may fail, a fish could die or the filter could block. Any of these would only be minor inconveniences while you were there to take swift action. In your absence all of them could result in a wipe out. A regular check by a friend or neighbour could save such disasters. Leave them a list of items to check – look for dead fish, check the water temperature, ensure air stones and filters are working. Instructions on what to do in an emergency are advisable – or a phone number of a fellow fish keeper who could help.

## Pond Keepers

The drill for pond keepers varies a little from that for indoor fish keepers, though the principals are the same.

Water changes, for example, are not needed in a garden pond, though may be useful in a highly stocked koi pond.



It is unwise to add any remedies or water treatments to your pond for four weeks leading up to your holiday. This applies particularly to algae treatments as the dead algae will decompose and could pollute the water if not removed.



Feeding is not required in the pond for holidays of up to 2 weeks. There is plenty of algae and insect larvae for the fish to consume. If you have a neighbour checking on the pond and ensuring that the filter is not blocked, pump is still working etc, it is worth asking them to feed the fish. As mentioned elsewhere – ensure they don't overfeed.

Much of what has been written here is common sense. The main thing is to get the aquarium or pond into pristine condition well in advance, rather than rush things at the last minute.

New Insect Meal Formula

FishScience



## The Future Of Aquarium Fish Foods

Uses cultured insect meal to ensure the food:

Recreates the natural diet fish would eat in the wild

Environmentally friendly and sustainable

Easily digested for low waste

Plus

Naturally enhances the colour of the fish using Spirulina algae, paprika and krill

[WWW.FISHSCIENCE.CO.UK](http://WWW.FISHSCIENCE.CO.UK)

# A NEW FILTER FOR JOE!

Simply Koi fitted an automatic cleaning Nexus yesterday for our good friend Joe Nethersell, Vice-President of the Federation of British Aquatic societies and organiser of the Festival Of Fish Keeping at the wonderful Hounslow Urban Farm.



It was a challenging job as it was so tight. We had to take the filter over the shed roof and through the roof of the filter house. Good job we're all young strong lads!







The filter looks great and Joe is, in his words, "Happy as a pig in the proverbial!"



# Pond Fish foods with insect meal – it’s what fish eat, naturally!

FishScience are pleased to announce the launch of their new insect meal based pond fish foods. ‘Insect meal is a fantastic new ingredient that we are using in the FishScience range of foods to replace much of the fish based ingredients that are traditionally used’ explained FishScience founder Dr David Pool. ‘Koi, goldfish, orfe and other pond fish are not fish eaters and yet many of the foods that we give them are based on fish meal.’

- The use of cultured insect meal brings a number of benefits both to the fish and to the environment.
- It is eagerly consumed by pond fish – after all it is what they would naturally consume in the wild.
- It is efficiently digested and processed, as it is what fish have evolved to eat over millions of years. This results in less waste and better food conversion ratios.
- The insect meal is cultured on waste fruit, and vegetables so providing an environmentally friendly and sustainable source of proteins.
- And most importantly, the fish really like it.

The FishScience pond foods also contain natural ingredients such as Spirulina algae, shrimp, krill, Carrot and grass meal to enhance the natural colour of the fish, together with Beta Glucans and omega oils to support the immune system and ensure the fish remain as healthy as possible.

The foods, which include Everyday food, Koi Food, Coldweather Food and Variety Food are a dumpy stick format, making them ideal for all fish over 10cm in length

The FishScience pond food range is available from aquatic stores throughout the UK and Ireland. For more details of this exiting new range of foods and to find your closest stockists please visit:

[www.fishscience.co.uk](http://www.fishscience.co.uk)



# NON-NATIVE INVASIVE AQUATIC PLANTS

## THE GREEN CORNER

The following pages are reproduced with the kind permission of NNSS - the GB Non-Native Species Secretariat. For further information click the link below or visit:

[www.nonnativespecies.org](http://www.nonnativespecies.org)

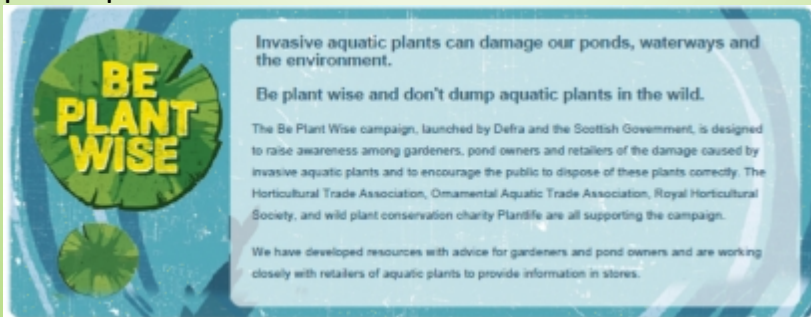
Do you own a pond and want to Be Plant Wise?

Ponds can turn a garden from good to great. They create a wonderful feature to be enjoyed all year round and are often a haven for wildlife. However, if they are not cared for properly some common pond plants can take over your pond. They can also become established in the wild, where they can smother our native plants, clog our waterways, exacerbate flooding and remove oxygen from the water which can harm fish.

This website gives you more information about some of the most invasive species threatening our environment. It also tells you how to dispose of unwanted plants properly and how to get the best out of your pond.

By following three simple steps we can all help the environment and reduce costs.

- Know what you grow
- Compost with care
- Stop the spread



On the next four pages are details of just two of the plant species that it is now illegal to sell in the UK. If you have either of these species, then you should visit the above website for further information regarding keeping or disposing of them. If you discover either of them in the wild, or any other listed species, then visit the above site for details of what actions you can take.

***Details of more species in the next issue of The Bulletin.***



# American Skunk-cabbage

## Species Description

**Scientific name:** *Lysichiton americanus*

**AKA:** Western Skunk-cabbage

**Native to:** Western North America

**Habitat:** Wet woodland, streamsides, muddy pond margins

Yellow flowers are produced in spring (late March to May) that resemble those of wild arum (lords-and-ladies). They emit a strong odour like that of a skunk. The plant has a basal rosette of stemmed leathery leaves, usually up to about 70cm long. It is a tall herb growing up to 1.5m in height. Green berries are produced in the summer.

American skunk-cabbage needs a wet site but has no specific soil requirements - it can occur in soils from light sand to heavy clay that are acid, neutral or alkaline. It is a hardy perennial lowland plant, but can grow at altitudes of up to 1400m.

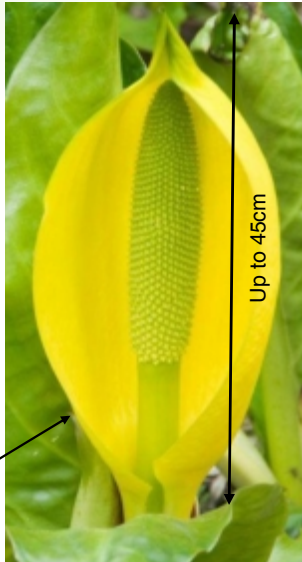
Seeds may be dispersed via waterways but also probably by birds and mammals, as occurs in the native range.

American skunk-cabbage is able to form dense stands and may negatively impact on some native plants, out-competing them by shadowing.

## Key ID Features



1 or 2 (sometimes up to 4) bright yellow spathes (look like large petals)



Leaves 40-70cm long (sometimes up to 1.5m)

# Identification throughout the year

Most easily identified when in flower (late March to May). When not in flower large cabbage-like leaves, often on swamp mud, may be used for identification.



# Distribution

Widespread but not generally common. Its normal habitat is wet woodland.

Source: NBN Gateway. Check website for current distribution



# Similar Species

**Asian Skunk-cabbage**  
Non-native  
(*Lysichiton camtschatcensis*)



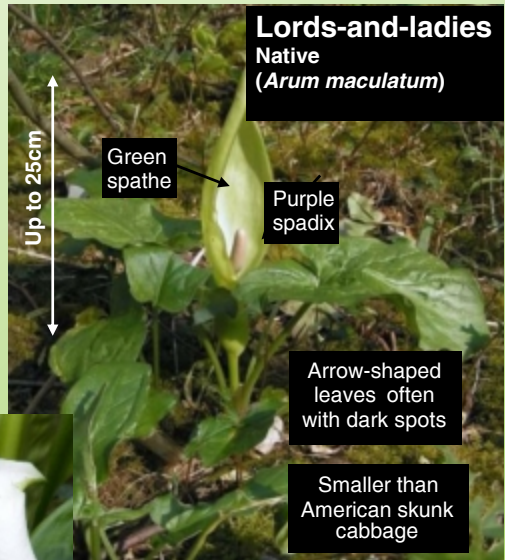
White spathe



Very similar plant but slightly smaller. Occurs in similar habitats. Hybrids between American and Asian skunk-cabbages can occur.

Flowers more or less scentless

**Lords-and-ladies**  
Native  
(*Arum maculatum*)



Up to 25cm

Green spathe

Purple spadix

Arrow-shaped leaves often with dark spots

Smaller than American skunk cabbage

## References and further reading:

Blamey, M, Fitter, R and Fitter, A (2003) *The Wild Flowers of Britain and Ireland. The Complete Guide to the British and Irish Flora* A & C Black, London

Preston, C D, Pearman, D A and Dines, T A (editors) (2002) *New Atlas of the British and Irish Flora*. Oxford University Press

Stace, C (1999) *Field Flora of the British Isles*. Cambridge University Press

Photos from: Sannse, RPS and GBNNSS

# Curly Waterweed

## Species Description

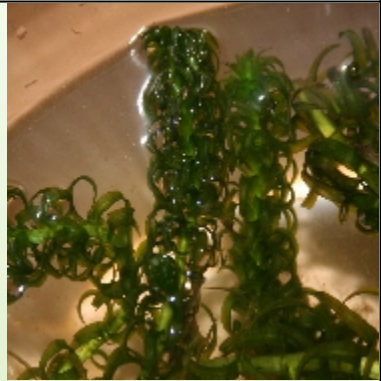
**Scientific name:** *Lagarosiphon major*

**AKA:** Curly Water-thyme, Chwyn d r Cyrliog (Welsh), *Elodea crispa*

**Native to:** Southern Africa

**Habitat:** Standing waters such as lakes and ponds.

A perennial, aquatic plant which can grow up to 3m completely submerged under the water in chalk, gravel and clay pits, lakes, reservoirs and canals. Leaves are strongly curved and whorled around the stem though are spirally arranged on the lower part of stem. Flowers are inconspicuous and borne separately as male and female flowers. Plants spread mainly by vegetative propagation through detached stem fragments and can become easily established.



First recorded in Britain in 1944 in a chalk pit in Bedfordshire, where it persisted for at least 40 years. Since the mid-1900s, it has been recorded in many locations and is now well-established at many sites.

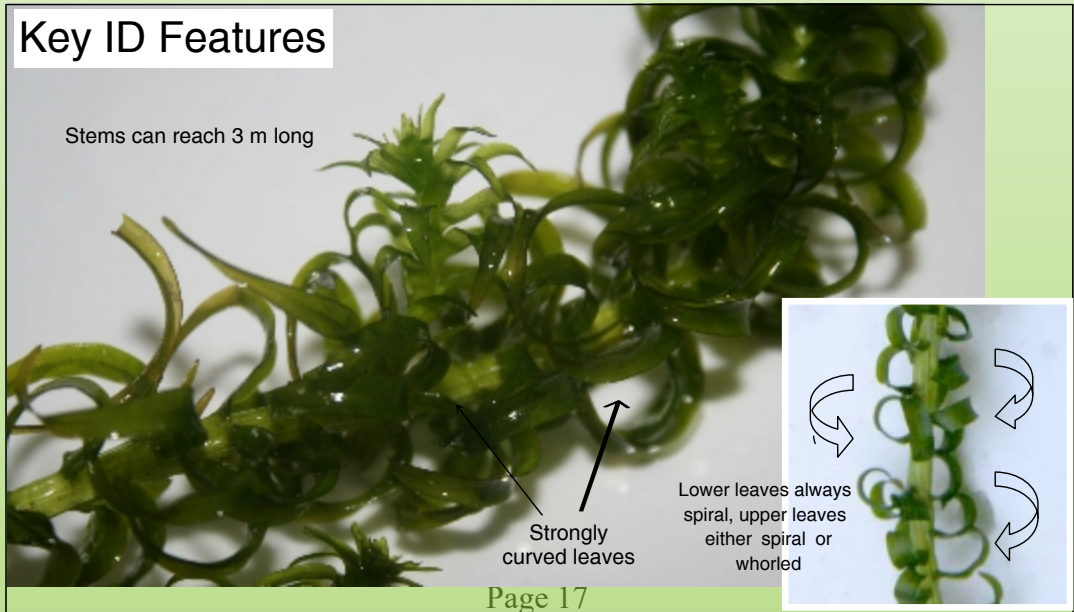
It is widely sold as an aquarium and garden pond plant and the UK population is most likely due to deliberate or accidental release. Like many nuisance aquatic plants, curly waterweed can overwhelm ponds and out-compete native vegetation as well as choke up waterways, exacerbating flood risk.

Curly waterweed is listed under Schedule 9 to the Wildlife and Country-side Act 1981 with respect to England, Wales and Scotland. As such, it is an offence to plant or otherwise allow this species to grow in the wild.

For details of legislation go to [www.nonnativespecies.org/legislation](http://www.nonnativespecies.org/legislation).

## Key ID Features

Stems can reach 3 m long



Strongly curved leaves

Lower leaves always spiral, upper leaves either spiral or whorled



# Identification throughout the year

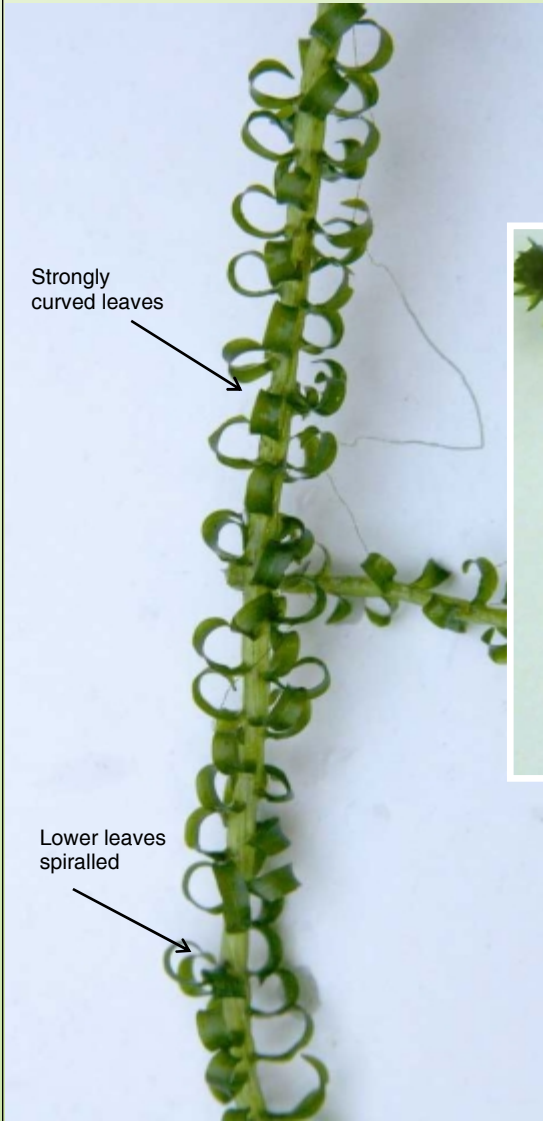
Survives over-winter in southern areas of the UK. Further north, the amount of plant material present over-winter decreases but rarely dies down completely. Therefore it can usually be identified throughout the year across most of the UK.

# Distribution

Source: NBN Gateway. Check website for current distribution



# Similar Species



## References and further reading:

<http://www.nercwallingford.ac.uk/research/capm/pdf%20files/23%20Lagarosiphon%20major.pdf>

Preston, C D and Croft, J M (1997) "Aquatic plants in Britain and Ireland". Harley Books

Preston, C D, Pearman, D A and Dines, T A (editors) (2002) "New Atlas of the British and Irish Flora". Oxford University Press

Stace, C (1999) "Field Flora of the British Isles". Cambridge University Press

Photos from: Joanne Denyer

**NEW!**

# FLUVAL FX GRAVEL VAC

The FX Gravel Vac effortlessly connects to all FX 4/5/6 canister filters for the ultimate convenience in powered substrate cleaning. A thumb-operated flow valve allows easy control of cleaning while disposable filtration bags provide mess-free removal of dirt and debris.



MADE IN ITALY



A370

## KEY FEATURES

### CONNECTS DIRECTLY TO FX FILTER UTILITY VALVE

For quick & convenient setup that harnesses the power of your filter.



### THUMB-OPERATED FLOW REGULATOR

Allows you to slow down or speed up water flow.



### BARBED FITTING

For a secure, leak-free seal.



### CLICK-FIT CONNECTOR

For quick & easy connection.



### DISPOSABLE VACUUM BAGS

Available in Fine & Super Fine (Details on back).



**FLUVAL**  
fluvalaquatics.com

Fluval FX Gravel Cleaner Kit

Code - A370



### GRAVEL GUARD

Prevents clogging.



### SUCTION CUPS

Affix securely to side of tank.



# Assist your FX Filter with the FX Gravel Vac, the ultimate convenience in powered substrate cleaning!

The new Fluval FX Gravel Vac effortlessly connects to all FX4/5/6 for the ultimate convenience in powered substrate cleaning. A thumb-operated flow valve allows easy control of cleaning while disposable filtration bags provide mess-free removal of dirt and debris.



## Key Features :

- Effectively traps dirt and debris
- Features integrated filter housing with Fine and Super Fine vacuum bags - sold separately
- Thumb-operated flow allows you to control to speed of water flow
- Connects directly to your FX filter utility valve
- Gravel guard prevents clogging
- Vacuum head with grooved design for efficient debris collection
- Suction cups affix to the side of the tank
- Tube extension included for larger tanks and hard to reach areas
- Easily stores within FX lid-mounted clips
- For use in freshwater and saltwater aquariums

See the Vac in action- [watch the video here!](#)

For further information please visit our website at [www.fluvalaquatics.com](http://www.fluvalaquatics.com) or contact Rolf C. Hagen UK Ltd. on 01977 556622



# **NEW! Vicenza & Venezia aquarium range now been upgraded with LED lighting!**

Spaces and dull corners come to life with light, movement and colour. That's the magic of Fluval Venezia and Vicenza aquariums, designed to make a bold, beautiful impression and an extra dimension to any environment. Available in 3 colours, Vicenza and Venezia aquariums make the perfect addition to any living space. Designed to enhance modern decor with a choice of finishes to co-ordinate with today's look.



Fluval Vicenza aquarium sets contain:

Specially machined aquarium filter inlets and outlets connected directly through the aquarium base. 6500K LED lighting with programmable light timer, Fluval external filter, heater and a Fluval aquarium care Guide.

RRP's

Fluval Vicenza 180 LED Aquarium Kit- Oak, Walnut, Black - £499

Fluval Vicenza 180 Cabinet- Oak, Walnut, Black- £225

Fluval Vicenza 260 LED Aquarium Kit- Oak, Walnut, Black- £649

Fluval Vicenza 260 Cabinet- Oak, Walnut, Black- £325

Fluval Venezia 190 LED Aquarium Kit- Oak, Walnut, Black- £555

Fluval Venezia 190 Cabinet- Oak, Walnut, Black- £259

**NOW WITH LED LIGHTING!**



# **FLUVAL**

## **VENEZIA & VICENZA**

### **AQUARIUM SETS**

**ARRIVING  
EARLY FEBRUARY**

Spaces and dull corners come to life with light, movement and color. That's the magic of the Fluvial Venezia & Vicenza aquariums, designed to make a bold, beautiful impression.

**DULL CORNERS COME TO LIFE!**

**PANORAMIC VIEWS!**

**NEW!**  
LED LIGHTING  
6500 K



# KNOW YOUR FISH

## *Danio rerio*

Brought to you by:



**Common Name:** Zebra Danio

**Scientific Name:** *Danio rerio*

**Origin:** Eastern India

**Maximum size:** 5cm



**Suitability for Aquarium:** A very active fish which remains close to the water surface and is ideal for the community aquarium. Keep in groups of 6 or more to see their natural shoaling behaviour and close interactions with each other. They are also good to keep with other active Danio species. Don't keep with large or aggressive fish

**Aquascaping:** Provide large open spaces, particularly close to the water surface. Some water movement is preferred and will encourage their natural behaviours.

**Water requirements:** Very tolerant of a range of water conditions. Temperature 18 – 26°C. Zebra Danios are tolerant of slightly elevated levels of ammonia and nitrite, making them good fish to introduce into newly set up aquaria. Their ability to live at 18 - 20°C means they can be kept in aquaria without a heater, providing it is in a warm room which doesn't fall below 18°C.

**Diet:** FishScience Tropical Flakes or FishScience MicroGranules as a standard food. Danios will form a ball of activity around a FishScience Fish Treats with Shrimp when added.

**Sexual differences:** The male is slimmer and smaller than the female. Females that are getting ready to spawn can be identified by their very rounded abdomen.

**Breeding:** One of the easiest egg laying fish species to breed. Place the female in a breeding aquarium 1 -2 days before adding a male. The breeding tank should contain fine leaved plants which will trap the eggs and prevent the parents eating too many. Add the male in the evening and the pair will often spawn the following morning. Up to 300 eggs can be produced by a large female Zebra Danio.

**Comments:** Zebra Danios are hardy and easy to care for, making them an ideal fish for the beginner. Long finned varieties are available. Zebra Danios are bred in massive numbers for use in medical research.



*Photos provided by The Fin Room & Crowders Aquatics*



# HOW TO USE INDIAN ALMOND OR CATAPPA LEAVES

**AMY LIM**

*Terminalia catappa* (also known as Ketapang or Tropical Almond or Sea Almond or Indian Almond) leaves are becoming very popular as a natural medicine and water conditioner for aquarium use. This guide provides 5 suggestions on how to use them.



## Introduction

Ketapang or Sea Almond or Indian Almond or *Terminalia catappa* leaves are known to most, if not all Asian breeders of blackwater tropical fishes, to be one of the best water conditioners to promote healing and breeding. They are known to have anti-bacterial and anti-fungal properties. Bettas are known to be induced to spawn by just putting a few of the leaves into their



tank. Fish suffering fin rot or injuries (such as spawning injuries) will definitely benefit from having the leaves in their quarantine tank. But they can be used for the usual aquariums too.

When soaked in water these leaves will leach a strong brown dye that is full of organic acids like humic acids and tannic acids. These may be useful for inhibiting many types of bacteria as well as to detoxify harmful heavy metals found in the aquarium.



It is no wonder that these leaves are often called “Miracle Leaves”.

## How to Use These Leaves

There are at least 5 ways of using them in the aquarium (apart from using them as beautiful leaf-litter in terrariums for frogs, hermit crabs, scorpions and snakes).

### Method 1: Directly

This method is simple: Simply put the leaves into your aquarium. After 1-3 days, if your leaves are completely soaked, they will be water-logged and sink. Apart from their beneficial effects on the water, they will tan the water slightly (to a clear amber) and provide a very natural stream-bottom look to your aquarium.

How many leaves to use? Well, the simple answer is: As many as you like. But the more leaves you put the darker will be the water and the lower the PH will be (though it is unlikely to drop below 6.0). You can even use the leaves as the substrate in the tank together with bog wood or a tree stump with roots to create a fantastic Amazon look for blackwater fishes.

But as a rule of thumb, you may want to use a couple of small leaves or half to a quarter of a large leaf for a 1 gallon (4 litre) betta tank. If you are spawning the bettas, I would recommend sinking one or more leaves (for the female to hide in) and allowing at least one leaf to float. The male betta will probably build its nest under the floating leaf! With the bubble-nest pushing up the leaf, it will float for long enough for the fries to hatch and become free swimming.

If you are using the leaves for a larger tank (say, for tetras, gouramis, arrowanas, apistos, plecos, or shrimps), I would recommend putting 2-3 large (or 4-6 small) leaves for every 25 gallons (100 litres).

You do not really need to change the leaves until they begin to disintegrate in about 3 weeks to a month. In fact, if you have shrimps or plecos, they will devour them when they start to disintegrate.

## **Method 2: Filter Bag Method**

In this method, you will need to get a filter bag (laundry netting or ladies stockings will also do). Crumple up 2-3 large leaves for every 25 gallons, and stuff it into the filter bag. Leave the bag in a compartment of the Overhead Filter near the inlet into the filter. If you use a Canister Filter, leave it in a bottom tray. (Do not simply stuff the leaves into the canister at the top, or you may end up with damaged impellers). The leaves will begin to tan the water in a couple of days. But it will disintegrate over 14-21 days and should be changed.

## **Method 3: Soaking Separately**

In this method, you will need a bucket or tub of water. Soak the leaves in the bucket. After a few days, you can pour the very tan water into your tank, and then top up (the bucket) with fresh water.

You can also add a spoon full of salt into the bucket (as preservative), and also run air pump to provide circulation and aeration for better results.

Using this method, you can leave the leaves in the bucket until the water from it ceases to be amber coloured.

## **Method 4: Brewing Blackwater Extract**

'Blackwater' is the term used to describe the kind of water found in the natural habitat of some acidic water fishes such as bettas, gouramies, killifish and arowanas. The water in such biotopes tend to be amber or tea coloured due to tannins that leach out of driftwood, peat moss and fallen leaves. Indian Almond (*Terminalia/Ketapang*) trees tend to shed their leaves throughout the year and would even dump almost all their leaves a few

times in a year. As a result, where there are Indian Almond Trees, the leaf litter in the blackwater stream, swamp or pond would comprise mostly of Indian Almond Leaves. In other words, the blackwater is black largely due to the tannins leaching out of dried Indian Almond Leaves that have fallen into the water.

And studies have shown that Indian Almond Leaves leaches not only tannins but many other beneficial substances.

Blackwater extracts made with Indian Almond Leaves can actually be more effective than those made with peat moss alone.

## **Steps**

To brew blackwater extract, follow the following steps:

1. Collect or purchase a bag of Indian Almond Leaves. If you purchase, Grade C leaves will be good enough, but remind your supplier not to clip off the leaf-stubs if he routinely does so.
2. Wash the leaves over running water with a stiff brush if they are not already washed. If they are already washed, rinse the leaves.
3. Get a large pot (preferably a clay pot otherwise, stainless steel, but certainly not copper) which is large enough to contain say 2 gallons of water.
4. Put about 50 (or more) leaves for each gallon of water the pot can contain.
5. Fill with clean water (preferably with chlorine and chloramine removed)
6. Weigh the leaves down with a chemically inert stone (e.g. granite).
7. Let the leaves soak in the pot for a day.

8. Boil the pot for 15-20 minutes.
9. Leave it to cool and soak for another day.
10. Boil one more time for 10-15 minutes.
11. Leave to cool. The water in the pot should be as black as thick coffee and very fragrant.
12. Filter the blackwater extract through a coffee paper filter (to trap detritus or any other insoluble matter).
13. Store the liquid in sturdy plastic or glass bottles.
14. Refrigerate or keep somewhere cool.

### ***Dosage & Improvements***

Dosage will be 1 ounce for 1 gallon of water in the betta tank. Use your discretion for larger tanks, but do not use more than 1 ounce for 1 gallon of water.

To improve efficiency you may also add anti-chlorine and chloramine into it, but make sure you calculate how much to add so that when you use 1 ounce of your blackwater extract, you will be able to treat 1 gallon of water (to rid it of chlorine and chloramine).

Refrigerate or use standard canning process to give your extract a longer shelf life.

### **Method 5: Tea Cup Method**

In this method, you will make Indian Almond Tea using either Indian Almond Teabags or simply using the leaves directly.

If you use Tea bags, make sure that the bags are hygienically produced with

water insoluble material. You may buy such tea bags on Ebay. Most tea bags contain only one to one and a half leaves.

Put the tea bag or a large leaf crumpled up into a cup, and add hot water. Leave it to cool. The water in the cup will have the appearance of strong tea by the time the water cools. Add what you need into the tank, and keep the rest (together with the leaf or the tea bag) in the refrigerator.

## Conclusion

Which method is better? It is really up to you!

Remember to wash the leaves thoroughly if they are not already washed by your supplier. If they are washed, just rinse what you need over running water before using them.

Remember that quality leaves that have not been weather-beaten tend to take longer to leach out their beneficial properties, so be patient. If your leaves are weather-beaten, they may leach tannins very quickly, but most of the beneficial properties would already have been washed off by the rain before they are collected.

*Editor's Note: Many thanks to Amy Lim for her kind permission to publish this article.*



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# KNOW YOUR FISH

## *Pterophyllum scalare*

Brought to you by:

**Common Name:** Angelfish



**Scientific Name:** *Pterophyllum scalare*

**Origin:** Middle regions of the Amazon River, South America

**Maximum Size:** 12.5cm long, 20cm high



**Suitability for Aquarium:** A hardy fish which should be kept in groups of 2 or more. Do not keep with small fish, which may be eaten. Also avoid aggressive species of those which will nip the fins

**Aquascaping:** The aquarium should be well planted with free swimming areas. Plant with tall species such as Amazon sword and Cryptocorynes. Pieces of slate or broad leaved plants are useful if you intend to breed the fish.

**Water Requirements:** Tolerant of a range of water conditions. Temperature 24 – 28°C, pH 5.8 – 8.0, GH 4 – 18°dH, KH 2 – 6°dH. Very sensitive to pollutants such as nitrite, therefore filter carefully and test the water. Poor fin development will occur in water with elevated levels of nitrite and nitrate

**Diet:** FishScience Tropical Flakes and Tropical Granules as a standard food. Enjoy a regular treat of FishScience Treats with Shrimp.

**Sexual Differences:** Difficult to distinguish in immature fish. Mature females have a rounder abdomen and, at spawning time the genital papilla is blunter than in the male. Best to obtain a number of fish and allow them to pair naturally.



**Breeding:** The pair will start to defend an area within the aquarium, before selecting a vertical surface on which to lay their eggs. This may be a slate, filter or broad leaved plant. Up to 1000 eggs can be laid following cleaning of the surface. The parents guard the eggs and fry. New parents, or those that are disturbed, may eat the eggs. If this happens repeatedly, move the eggs on the structure that they were deposited into a separate breeding aquarium and ensure there is a good flow of water over the eggs. The fry will feed on newly hatched brine shrimp initially and then on a fine powdered fry food

**Comments:** The Angelfish is one of the most popular and iconic aquarium fish. It is available in a range of colours and fin types.



*Photograph courtesy of The Fin Room Motherwell*



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