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KHV EXPERIENCE

This article has been up-dated 22nd July 2015 and added to the end of this statement.

"In the Koi businesses to mention you have KHV means you get treated and ignored as though you have the plaque and business stops? It has taken me seven years to write about it and during that time I have done my own research work. The following overview is my findings of how it started."

Viruses come in all aspects of humanity from the common cold virus to HIV some spreads by touch some are airborne what we do know is they are intelligent and can mutate, imagine the consequences for humanity if HIV was to mutate to an airborne virus, scientists worry that this may be a reality one day in the future?

Also bear in mind, humanity to-date has not developed a 100% cure for any virus?

It was once commented to me that

"The problem with KHV is that it is a virus. A virus lives inside the cells of the hosts body (Koi). Therefore a virus can be killed outside the body (its host) but you cannot cure KHV or any other virus once you have it - without killing the host or in our case the Koi fish themselves".

I would like to challenge that belief based on my own experience having been involved with the disease on three separate occasions with a client who unfortunately suffered exposure and losses to the disease from Japan over a 3 year period through another dealer. In addition, on an ongoing basis over the last six years we have been actively monitoring the survivors of this virus attack in a collection of 58+ - Koi measuring 50 to 70 cm I call: "*The living dead?*"

I should also give full credit to Johan and Alan Roets for their visionary pioneering work undertaken in containing the disease.

The saga in Brief



A Koi farm was established in South Africa its aim to breed and export quality Koi its facilities was impressive with a considerable investment financially in establishing breeding, rearing and exporting facilities in

addition to a very expensive budget of breeding stock from Japan to upgrade the facilities existing stock.

When the disease struck for the first time in 2004 from Japanese sources the farm was faced with financial ruin as work in breeding was well advanced with over a million Tosai growing in our mud ponds and the attitude of the day was to close the farm down and kill everything.



Instead we researched work at the time being done worldwide and compiled our own action plan.



Although the diseased shipment was in quarantine and isolated, by the time we realised we had KHV the disease had spread to other facilities including our Tosai ponds through human intervention and a lack of hygiene with facilities equipment and skin contact when working in the different facilities and ponds on the farm.

“Example the labour force would back flush filters and water changes in the quarantine pond then go and feed the Koi by hand in other ponds, without washing and disinfecting, the virus was transferred by living on their moist skin?”

Being in Africa and the Koi farm being in the middle of a wildlife reserve five star lodge, we also had a problem of wild animals (Buffalo coming into the 30+ mud ponds each 100x50m not including the occasional crocodile)



in the evening transferring the virus into each pond they went into so although we secured human hygiene behaviour we couldn't stop the wild life from spreading the virus throughout the farm?



When the test results came in we were getting outbreaks of dead fish throughout the farm and we made the decision that everything was infected so we concentrated on trying to save as many of new Japanese breeding stock in quarantine and existing

breeding stock of over 150 Koi by putting them into heated ponds and raising the temperature to 34 degrees minimum for over a month with a salt concentration of 8% as we found the transfer of the virus in water of this solution stopped or reduced to physical contact by a Koi to another?



During this time we killed everything else draining all the mud and concrete ponds and letting them disinfect in the sun for a season with lime along with all equipment.

The objective was to try and save as many of the breeders as possible, breed with them

the following season to regenerate the farm to get income then kill all the breeding stock and purchase new breeding stock the following year to start again. That way it wouldn't be a total financial ruin. And it worked?



We saved nearly 60% of the stock by heat treatment, salt water and a cocktail of antibiotic drugs to attack secondary aeromonas ulcer infections that transpired. I believe if the treatment was started quicker those that died could have been saved as the disease attacked in

waves of 5 to 7 day intervals not all fish being infected at the first outbreak of the disease?



The Koi were kept in isolation and healed growing well, but showed a sluggish and slow swim ability concentrating on motionless behaviour near oxygen inlets, come spring all were in breeding condition.

On the farm we set up an isolated breeding facility with three secure perimeter sections, each with their own work force that did not meet.

In the first section we stripped the males and females in a dry environment mixing and fertilising the eggs, after



giving the Koi hormones earlier in the day, to make them spawn next morning.

Meaning the virus is not in the sex organs or doesn't exist anymore after the heat treatment?

It worked?



Tosai. Unfortunately when we got rid of the living dead and went to Japan to buy more breeding stock in 2006 with Koi Water Barn visiting Sakai Koi Farm Hiroshima in the south of Japan we were given the disease again.



This second infection was treated the same way and we saved over 60% shortly afterwards a corporate client who also got the disease through a separate infection from another source asked us to treat their fish with the heat treatment which we did with the same results 50-60%

save rate.

(From 2004 to 2008 South Africa went through a major outbreak of imported Koi from Japan being infected with KHV. Even now in 2011 last month two South African ZNA judges lost their whole collections with KHV?)

Unfortunately after this second attack I left the farm I heard "through the grape vine" it was subsequently invested in by Koi Water Barn who gave us the second infection and shortly afterwards the property was sold and the farm closed down.

No other work on the disease has been undertaken.

That year 2006 we restocked the corporate hotel client's ponds with 70 Koi the living dead survivors from three successful separate heat treatments. The client has two separate ponds but connected on one filtration system and is 100,000Lt + in capacity. They are internal ponds being in the middle of a hotel foyer area with constant stressful movement and interaction with people daily. From then till to-day I have been maintaining this collection. Today nearly six years later the fish are fat healthy and growing.

Bottom line is you can stop KHV from multiplying? (Using the heat treatment.) And one can breed with the infected fish as the above and below picture show. *The living Proof.*



We found that if during that initial 30 day heat treatment period clean Koi are introduced to the pond they get infected. And the 30 day minimum process starts again. To be save one should continue the heat treatment for 60 days 2 months.

Unfortunately we did not do an experiment of adding a Koi after the heat treatment was finished, but in November 2009 three years after we restocked the Hotel clients pond I introduced 5 of my own bred Tosai 20cm to the collection to-day three years later 4 of the 5 Koi are still alive and grown to +- 50cm living healthy.



Unfortunately in March 2010 one of the introduced five Koi died showing no external signs of KHV. The Koi was sent for testing and subsequently dissected and swabs were taken from internal organs and gills for analyses in Labourites in Durban South

Africa. The results were negative for the virus KHV which is good news and confirms that the collection of Koi are not carriers of the disease but are in a state of good health in a stressful environment.



(Further results showed the Koi had died of bacterial gill infection or Gill Rot. This infection is very difficult to identify due to it being inside the Koi it may or may not have contracted it in the hotel or from my own establishment prior to being introduced and manifested

itself in the hotel ponds.)

This result allows for the introduction of quarantined Koi to the collection to replenish the collection. (We haven't done this to-date)

I am of the opinion the heat treatment neuters the virus from multiplying but it is still there in the original ones but their own immune system controls it?



To-date I have never tested the original Koi for the virus or bred with them again all scientific work on the subject has been stopped.

One day when it is acceptable to talk about the subject I would like to finish this experiment but until then it is a taboo.

The hotels fish live their lives out peacefully and they look good, some even of a show quality, no one has interfered with them since 2006.

I am of the opinion If there is no sign of the virus the heat treatment kills it if the virus is present it is neutered as the four additional Tosai are now three years old and healthy living in a stressful every day environment in the middle of a busy venue?



Signs that one can see with the living dead are, the virus make the Koi sluggish and want to remain motionless a lot of the time close to oxygenated waterfall inlets I believe after the heat treatment the fish's immune system is able to take over but the virus has already done

damage to the internal organs of the Koi but the Koi pulls through?



Results of the survivors over the last six years and the deaths that occurred show that depending on the severity of the damage to the internal organs by the virus the survivors fall into three categories

Heavy damage, Koi could live for one to three years. (During this time we had several deaths mainly with fe-males egg bound)

Medium damage, Koi could recover and cope with the damage (Over the last two years 2-3 deaths again egg bound)

Slight damage, Koi make a recovery all organs working. (Over the last year no deaths)

Approximately 55 Koi remain Each year the fe-males get full of eggs



Survivors of the virus can be used for breeding using iodine solutions

All babies are born healthy the virus is not passed on through the egg or sperm.



- Through establishing a secure stripping of the breeders environment and a secure egg to brushes environment in Iodine and secure hatching facility you can use the survivors for breeding and the young are healthy?

When quarantining Koi a good early indicator for KHV is a Doitsu Ochiba to be put into the quarantine pond with any new shipment as they develop black spots over its whole body if infected, within 10 days. Doitsu fish seem to be more resistant

to the disease compare to scaled who get hit quicker. The minimum time it took for KHV to breakout was 15 days the maximum time we had an outbreak was after a quarantine period of 29 days? (See pictures of an infected Doitsu Ochiba that was a carrier, It wasn't affected by the disease? Question is why?)



The logic in the above methods used was financial but through this process we gained an understanding of the Virus and how to control it? Personally if it was any other situation I would say kill everything but on a farm with millions financially at risk to try and cut ones losses I

would recommend doing it again.

During research conducted we found out amongst other things the following; That Doitsu fish in general are stronger than scaled Koi in handling a KHV attack. And that Doitsu Ochiba Shigure show the signs of the disease being present, before other Koi get sick or die.

In the case above the Koi was infected but did not die at first, eating normally.

This is critical information as Time is an important factor in any rescue attempt of the others in the pond and the probability study and decision making that has to be done with the aim of isolating the lethargic ones, maybe the carrier or removing healthy looking ones and stopping the spread of the new generation of viruses being shed from the initial

infection through the water.

Our findings showed the initial KHV infection seems to shed a new generation of viruses in waves, the time between these releases depends on the severity of the carrier's problems that led it to getting sick, relapse in the first place (Stressful factor, external or internal)

Not all Koi in association with the carrier in the pond get infected on the first wave of new generation viruses. The viruses have a limited time to find a host 4 - 20 hours, or they die. There are medications you can put in the water to kill the free swimming viruses when quarantining. Or immediately heat the water to 34 degrees or higher.

It takes time from infection to activation to shedding a new generation of viruses, during that window of opportunity one can see signs : Lethargic behaviour, The Koi hanging at water inlets, Difficulty in breathing, Isolated behaviour, Mad swimming motions through the water, Sitting vertically in a corner of the pond facing up or down, at the later stages of infection, Raised skin mucus lumps, Pale white spot rash on head and body, Koi's skin becomes like sand paper, Sunken eyes, Sunken notch between nose and head, Grey or black mucus in the gills. The earlier one see's these signs the quicker one can react before the virus starts shedding a new generation of viruses. Time could be from infection to shedding a new generation of viruses 5-8 days.

So i recommend that everyone has a Doitsu Ochiba kept permanently in the quarantine pond. (Try to have more than one quarantine pond setup (Plastic porta pools) Any new Koi purchased join it in the quarantine pond for a minimum of 60 days before moving them to your main pond..

It was also noticed when the virus is active, it also went hand in hand with parasite infestation especially Costia and Flukes



For those of you that are still reading this article I would ask that you have an open mind, For those of you that would like to challenge our findings please do so, it is to be expected only when others

have tried it and measured it then compared can one verify the results scientifically.

In comparison Darwin had the same problem with the church?

A question that comes to my mind is if KHV is neutered at 34 degrees through heat treatment can the treatment method also eradicate or neuter other viruses? Could it work on HIV by heating the human body to its maximum which is 40 degrees or higher with the aid of machines to keep the patient alive? Or taking the body down to its lowest temperature 24-27 degrees as both treatments have been shown to work by others who have worked with KHV.

- It is interesting to note that in the agricultural industry fruit farmers in Europe tackled a virus that attacks their fruit trees in the same way. They covered the tree in a plastic bubble sealing the plastic base into the ground. The high temperature endured in the bubble covering the tree eradicated the virus?

- It is also interesting a surgeon in the US has successfully operated on a patient with a deadly stomach virus that has no cure by filling the stomach with water heated to 90 degrees agitating it for one and a half hours after words there was no sign of the virus the patient was cured from an otherwise deadly infection.
- Doctors have know the qualities of heat treatment for over a 100 years it's only now they have the technology to keep the patient alive at such high temperatures?

It makes one think, but more questions than answers?

Thank you

I hope this article encourages others to find solutions.

James Norrie

Up-date Since writing this article several years have passed and new data has come forward from this collection of Koi that has went through the heat treatment with regard to this virus, that I need to document,

Hi,

Statistics for this page show people are reading this article so I am moved to update it as it has been several years since this article has been written but several new oddities with regard to the virus have transpired since then.

In November 2013 I was in the U.K. and had several in-depth discussions through a dealer with those working on the virus who commented my situation in South Africa was pure luck as their results showed the virus was being produced and shed by heat treated Koi?

As luck would have it on my return to South Africa I received a call from the client that I have written about stating they had three fish (Naive) ones died over a period of a month. On examination of the pond I found one of the original 75cm Koi with a 50cm ulcer hole in its side, with body fluids oozing out. The fish was put to sleep and disposed rather than to try and cure. Salt was added to 06% after this was done no more deaths were reported and to-date the client hasn't had any more problems since then, nearly two years later.

In May 2015 the client added 25 two year old, 38 - 40cm Koi from Japan to the pond, to date they are all fine and growing.

Questions

When the original heat treated Koi are healthy no problems?

At the same time Naive fish don't seem to get infected or do they but infection not lethal?

When a Koi gets sick (Ulcer) and the body fluids leach into the water the virus is rampant.

Koi die.

When this sick fish is removed the virus infection stops

Naive fish added don't seem to get infected or if they are it's not lethal?

Perhaps I need to take samples of the naive Koi added previously for testing and the new ones a year from now.

Haven't got the answers just the facts of what happened?

Hope it sheds light on perhaps your own situation?

Regards

Hi all,

To those of you that sent messages of support with regard to the KHV debacle, thank you.

Talking about a taboo issue as KHV makes people think you're involved with the subject in some way or it is used by others as propaganda against you.

So let me make it quite clear.

Pongoi Koi does not have KHV survivors on its premises.

Pongoi Koi does not breed with KHV survivors.

Pongoi Koi premises are and have been free of KHV, since early 2006. Yearly random tests

on stock has been done to present day by authorised Veterinary practitioners not associated with Pongoi and over the years their tests have shown to be negative.

Pongoi Koi shipments of new Koi get quarantined and tested in accordance with the above practice and our standards stated on this web page.

Pongoi Koi learned a valuable lesson's from our experience with KHV experience's, which enforces us to keep strict and some time excessive quarantine principles.

All Pongoi Koi stock is from farms in Japan that have the highest quarantining standard, we do not buy from any other country.

I deal with breeders that are members of Shinkokai, association in Japan, that are obliged to notify clients of KHV outbreaks and enforce random testing on its members.

Pongoi Koi does not condone others that practice their business with KHV carriers.

Neither does it associate itself with business that do.

Pongoi Koi clients have never had an incident of mortality's from our Koi.

All our Koi, stock's and babies are tested and KHV

free our fry come from KHV free parents...

Pongoi Koi guarantees all its stock and sales 100%.

I hope the above meets your criteria and again a big thank you to all our clients

Regards
James