

Fish spawning induction – pituitary gland

- The pituitary gland has been used in the induction of fish spawning for the first time in 1934 in Brazil
- The gland produces and stores the gonadotropic hormone(s) which plays a key role in fish spawning
- The concentration of the hormones in the pituitary is at its highest during the pre-spawning period, while is very low during the resting period and after spawning
- Found on the ventral side of the brain below the hypothalamus
- To be collected from live mature male or female fish (hormones decompose quickly after fish death)



Methods and tools used in the collection of pituitaries may vary according to fish size, species and the skills of operators.

Processing and storage of fish pituitary glands

Acetone storage:

- Collected pituitaries should be immediately placed in acetone for dehydration.
- After the collection of a batch of pituitaries, the acetone is drained and fresh acetone is added. After 8-12 hours of collection, the acetone is changed again.
- After another 24 hours, the acetone is drained off and the glands dried on a tissue paper.
- Acetone-dried glands can be stored for as long as 5-10 years if they are kept free from moisture in wax-sealed phials.

Alcohol storage:

- Pituitary glands can be preserved in absolute alcohol. Glands are immersed in the alcohol immediately after collection.
- After 24 hours, the glands are washed with absolute alcohol, and put in fresh absolute alcohol and stored in wax-sealed phials.

The labels of the phials which contain the pituitary glands should indicate the date of collection and the donor species and its average size.

Handling of pituitary glands in artificial propagation in fish – **considerations & issues of concern**

Considerations

- The use of pituitary gland in the spawning induction has variable results
- This was found more efficient when donor fish is closely related to the receipt fish
- Common carp pituitary has been widely used to induce the spawning of several of other species because:
 - Common carp matures at younger age compared to many of recipient fish
 - Lower cost when compared to recipient fish
- Practically, the dose of pituitary glands is based on number rather than weight
- On the average, a donor fish may yield 3 mg of pituitary/kg of fish biomass

Issues of concern

- Need to kill as many of donor fish as required for the operation
- Hormone contents of the pituitary many vary according to several factors such as time of collection and stage of maturation. This may affect the standardization
- If fresh pituitary is used, disease from donor fish could be transmitted to the recipient
- If for whatever reason, the average weight of donor fish is unknown, the use of pituitary is based on guessing rather than reliable estimates