

Applications of “squash technique” in sex determination in fish

In most fish species, the identification of sex based on morphological characteristics in most fish is easier in larger fish. This matter may turn difficult in case of fingerlings and impossible in case of early fry.

For variety of reasons, the sexing of fish juvenile or even fry will be required. Examples:

Effectiveness of tilapia sex reversal (this could be required by either producers or buyers)

Progeny testing being a step for identifying the genetic make-up of male tilapia whether xy or yy (super male)

The technique has been applied to more fish species whenever the phenotypic sex is not yet recognizable

The sexing of small tilapia of about 0.2 g or even less was found possible and accurate



The squash technique has been developed and described by Guerrero and Shelton in 1974

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Procedures:

Fish are sacrificed and the gonads are excised using fine forceps. (a magnifier may be required)

Collected gonads are mounted on a glass slide and few drops of aceto-carmin stain are added. Gonads are lightly squashed with a cover slip

The gonad mounts are examined under a compound microscope using magnifications of 25 to 50x

The male gonad is composed of fine granular like structure of spermatogonia and the female is characterized with the structure of circular oogonia

Often, females are easily identified compared to males.

The number of tested fish (gonads) is related to statistical requirements; a random sample of 30 specimens seems sufficient.

