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JOURNAL OF THE TENNESSEE ACADEMY OF SCIENCE

VOLUME 50, NUMBER 1, JANUARY 1975

A SIMPLE METHOD OF OTOLITH PREPARATION FOR FISH AGE DETERMINATION

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ABSTRACT

Sacculus otoliths are often used to determine approximate ages of various fish species. In this method, otoliths are dissected from the specimen, dried, and covered with xylene or toluene. Annuli are easily counted with the aid of a 30X to 40X microscope and transmitted light.

INTRODUCTION

Age composition of a particular fish population is often included in icthyological studies. Counts of scale, dorsal spine, or sacculus otolith annuli are among the most frequently used methods of age determination. In some genera, such as *Cottus*, annuli counts of scales and dorsal spines are impractical. For age studies of these genera, sacculus otoliths may be used.

Past methods of otolith preparation were found to be unwieldy and time consuming. In an effort to find a fast and simple method of otolith preparation, the following technique was found to be rapid and to produce otoliths of sufficient clarity for accurate annuli counts.

METHOD

Sacculus otoliths were dissected from the inner ears of 72 banded sculpins, *Cottus carolinae* (Gill). The otoliths were blotted dry with lint-free paper and placed in small vials. The vials were marked for identification with the specimen number and date. These uncapped vials were placed in a drying oven at 103°C for 15 minutes. The vials were then removed from the drying oven and cooled in a desiccator. Enough xylene to cover the dried otoliths was poured into each cooled vial. The otoliths were removed from the vials with forceps, placed in depression slides, and recovered with xylene. For counting annuli, each otolith in its respective depression slide was placed on the stage of a 30X or 40X dissecting microscope and viewed in transmitted light. Otolith annuli were counted and interpreted according to Patten (1971).

DISCUSSION

This simple and rapid technique yielded translucent otoliths. Clear and opaque areas of each annulus were easily discernible. Transmitted light from a microscope substage lamp was found to give better clarity than reflected light. In field situations, or where drying ovens are unavailable, otoliths may be washed in 95% alcohol and thoroughly air-dried before they are placed in xylene. Sculpin otoliths were used for this procedure, but the method should be equally suited for any fish species.

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