

Application News

Industrial X-ray Inspection System

No.N107

Observation of Killifish Skeletal Structure with X-Ray CT System

■ Introduction

Using an X-ray CT system allows non-destructively and three dimensionally observing the internal structure of objects.

In particular, the inspeXio SMX-90CT Shimadzu Microfocus X-Ray CT System (Fig. 1) offers micron-level imaging resolution that allows observing the

complicated internal structures of small objects in detail.

In this issue, the skeleton of a killifish is observed as an example of an application in the field of biology, where the interior is investigated from a variety of angles.



Fig. 1 inspeXio SMX-90CT Microfocus X-Ray CT System

■ Observation Results

In this example, the object being observed is a killifish about 45 mm long. The killifish provided was a valuable specimen being bred for research purposes, with a documented lineage.

Fig. 2 shows a 3D image reconstructed from CT images of the specimen being observed, which allows observing the skeletal structure in great detail.



Fig. 2 3D Image of Killifish

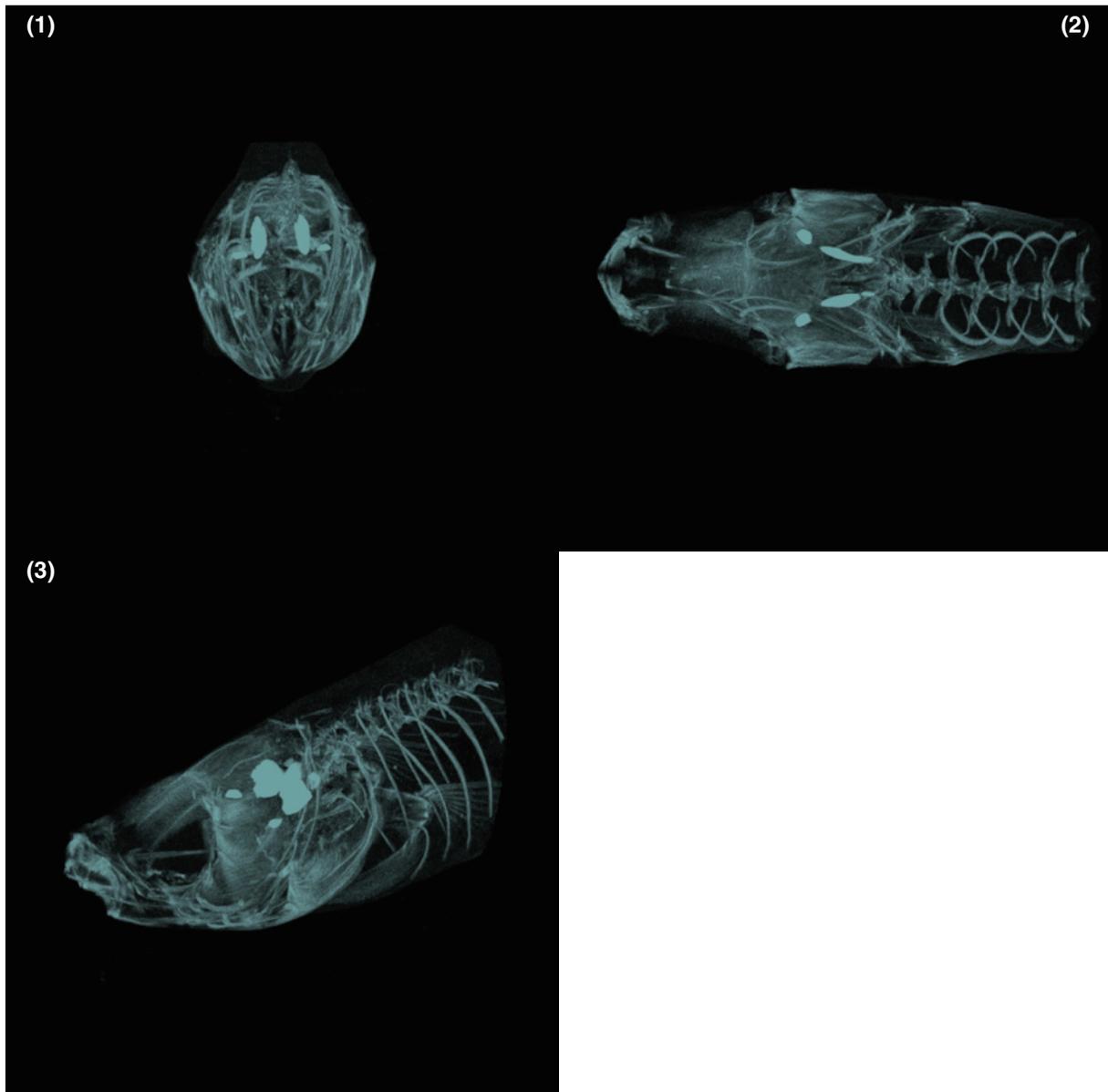


Fig. 3 3D Image of Killifish

Fig. 3 shows the interior of the specimen viewed from various angles. These images were rendered using the 3D imaging functionality included in the instrument, which allows generating 3D images from any angle desired.

In this case, the three images are the killifish (1) viewed from the front, (2) viewed from the top, and (3) viewed at an angle, from above and to the side. These images show how 3D images allow

understanding the killifish's skeletal structure and spatial relationships in extremely fine detail and provide more useful data than simple fluoroscopic images.

As this example shows, X-ray CT systems, which enable viewing complicated internal structures freely from any angle, can provide extremely interesting data for the biological sciences and, therefore, is a valuable tool for research.



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