

Anatomical study of an adult Ornate Bichir [*Polypterus ornatipinnis* (Boulenger, 1902)]

Etude anatomique d'un polyptère adulte [*Polypterus ornatipinnis* (Boulenger, 1902)]

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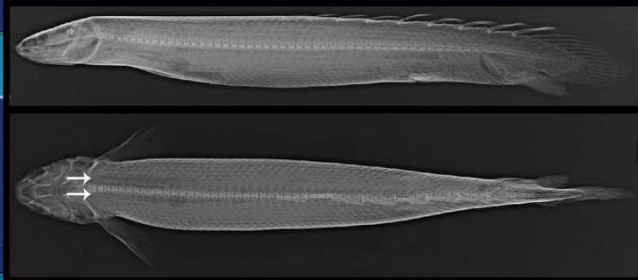
Introduction

The present work was conducted on an adult Ornate Bichir, *Polypterus ornatipinnis* (29.8cm long in total length and 118g in weight), reared in the Aquarium de la Porte Dorée (Paris, FRANCE). Our work was mainly focused on the study of the primitive sac-like lungs, an original air-breathing structure specifically present in polypterids.



Methods

The specimen was first studied thanks to radiographs (lateral and dorsal). Then a dissection of the internal cavity showing the air-breathing system was performed.

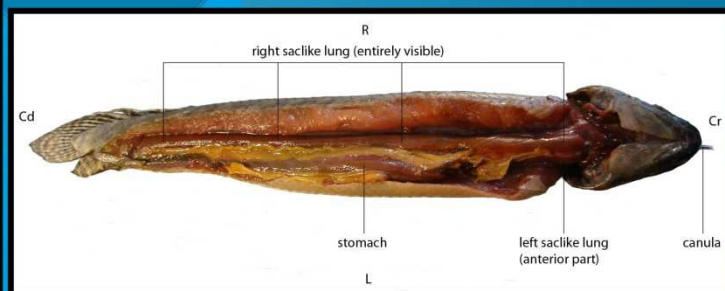


Results

Unfortunately, thick and highly mineralized scales, ganoïd scales, hide the internal organs and prevent us from observing distinctly on radiographs the main parts of the lungs: only their anterior part is visible on the dorsal view (Right picture: white arrows).

Then a dissection enabled the visualization of the ventral oesophagian opening of the lungs by inserting a canula. With this tool the filling of the lungs with air thanks to a syringe was possible and helped us to distinguish them easily from the other organs. This simple setting confirmed Perry and al. (2001), who describe the lungs of the Polypteriformes, the lungfish and the tetrapods "as paired ventral derivatives of the pharynx posterior to the gills".

Right picture :
Yellow arrow : oesophagus opening
Red arrow : ventral sac-like lungs opening



Conclusion

The study of Ornate Bichir allowed us to highlight an original air-breathing structure in this particular actinopterygian fish: polypterids. The next step will be to perform modern imaging (MRI) on an anesthetized specimen.

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