STUDY OF THE SOUND-PRODUCING APPARATUS OF TWO CARIBBEAN BOXFISHES, *LACTOPHRYS TRIQUETER* AND *ACANTHOSTRACION POLYGONIUS*

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The first studies on the production of sounds in different Indo-Pacific Ostraciidae species from *Ostracion* and *Lactoria* genera have highlighted different unique features. One intriguing morphological feature is the presence of two muscles positioned at right angles to each other, located at the anterior region of the swim bladder. This unique anatomical arrangement enables them to produce two distinct types of sounds in a sequential manner, with prolonged hums interspersed by pronounced clicks.

In this study, our focus shifts to the Atlantic Ostraciidae, investigating for the first time the sound-producing mechanism of *Lactophrys triqueter* and *Acanthostracion polygonius*. Both species have demonstrated the capacity to generate sounds. The sound-producing mechanism in Atlantic species displays an entirely novel and distinctive design. Whereas sound-producing apparatus using the swimbladder are usually composed of the latter and sonic muscles inserted on it, the system in Atlantic Ostraciidae comprises two spherical masses applied to the swim bladder fenestra, a region lacking the tunica externa, situated at the dorso-rostral end of the swimbladder. These spherical masses are entirely enveloped by sound-producing muscles possessing characteristics typical of fast-contracting muscles. The contraction of these muscles propels the spherical masses within the swimbladder, thus initiating the production of sounds. Histological investigations showed that the spherical masses are composed of connective tissue evaginating from the submucosa of the tunica externa. This new kind of sound-producing mechanism in Atlantic species diverges significantly from that observed in their Pacific counterparts. Additional comprehensive studies on the acoustic abilities of Ostraciidae and the evolutionary origins of this unique sound-producing mechanism are required to gain a comprehensive understanding of these intriguing biological adaptations.

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