

## AGE VALIDATION IN EARLY STAGES OF *Sepia officinalis* AND ITS APPLICATION TO AGE ESTIMATION OF SEPIA SPECIES

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### Abstract:

This study validates the daily deposition of beak increments in juveniles of *Sepia officinalis*. A total of 127 individuals of *Sepia officinalis* were cultured in captivity to validate the temporal deposition of increments observed in the beak rostrum surface (RS), following the methodology of Perales-Raya *et al.* (2018) in octopus paralarvae. Daily deposition in *S. officinalis* was validated up to 31 days of age, including the first increment (i.e. day-0 or hatching). The study was carried out in duplicate to standardize the methodology, and at different temperatures (21°C as conventional rearing temperature and 18°C as a small reduction) to assess possible variations in the temporal deposition. No differences were observed and daily deposition was confirmed at both temperatures.

This standardized validation method was used to perform age estimations in adults using the rostrum sagittal sections (RSS) of other cuttlefish, the African cuttlefish *Sepia bertheloti*. We analysed 206 beaks of adult *S. bertheloti* caught in West Africa: 78 in Morocco and 128 from Guinea-Bissau. A maximum age of 433 days was observed for individuals from Guinea-Bissau and 419 days for individuals from Morocco. The number of increments in the RSS was counted according to Perales-Raya *et al.* (2014). Assuming a daily deposition of growth increments in rostrum sections beaks (according with our validation in the RS of *S. officinalis* juveniles), the results show different growth patterns in both areas of NW Africa. *Sepia bertheloti* shows a slower growth rhythm in the waters of North Morocco, with smaller sizes (dorsal mantle length) at the same age than off Guinea-Bissau. Reasons of these differences are also discussed.

**Key words:** beaks, increments, hatching mark, culture, growth rhythm

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