



Intraspecific variation of the caudal fin skeleton in *Osteoglossum bicirrhosum* Cuvier 1829 (Teleostei: Osteoglossomorpha: Osteoglossidae)

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Abstract

The caudal fin skeleton has been regarded as a major source of characters used in the evaluation of teleostean interrelationships. Despite the increasing number of papers drawing attention to the variability observed within species when large samples are considered, intraspecific variation of this complex remains poorly known for many teleostean groups, and comparative anatomical studies still often rely on a small number of specimens. Within the Osteoglossomorpha, there are few studies concerning intraspecific variation patterns, and many aspects of both the anatomy and homology of the caudal fin skeleton elements are controversial (e.g. epurals *versus* uroneurals; number of hypurals compounding the “hypural fan”). Given this perspective, we examined the caudal skeleton of 84 specimens of the neotropical osteoglossid fish *Osteoglossum bicirrhosum*, and described and quantified its morphological variation. We determined that the number of neural spines on the preural centra and hypural fusion patterns showed the greatest variation. Despite the widespread distribution of this taxon, the observed variation appears to be geographically independent, and occurs randomly within populations.

Key words: *Osteoglossum*, caudal skeleton; intraspecific variation, Osteoglossidae

Introduction

Historically, the caudal skeleton is regarded as one of the most informative anatomical complexes, and has been used for the evaluation of teleostean interrelationships as a source of diagnostic characters for taxonomic and systematic studies (e.g. Gosline, 1960; Nybelin, 1963; Monod, 1968; Patterson & Rosen, 1977; Schultze & Arratia, 1989; Fujita, 1990; Arratia, 1997). However, most of these studies are based upon only one or a few specimens. For a broad revision, involving a large number of taxa, the sampling effort required for assembling large collections of specimens with disjunct or widespread distributions often poses irresolvable problems (especially when fossil taxa are included). Consequently, questions such as the recognition of ontogenetic changes or individual variation usually remain unaddressed.

Morphological variation is at the very basis of taxonomy and systematics, since it is what allows the recognition of discrete taxa. Thus, a clear identification and description of ontogenetic and individual variation become necessary for proper recognition of taxonomic variation. A comprehensive review on the categorization of different classes of morphological variation can be found in Grande (2004).

Cases of skeletal individual variation in teleosts have been reported in several studies (e.g. Schultze & Arratia, 1988; Hilton, 2002; Schepper *et al.*, 2004), but for most taxa qualitative or quantitative aspects of such variation remains unknown. Individual variation can occur either intra-individually (regionally within a single individual) or inter-individually (between individuals of the same species). The inter-individual variation is usually named intraspecific variation (Grande & Bemis, 1998; Hilton, 2002; Grande, 2004). If intraspe-