

Dental morphology and diet in anuran amphibians from south India

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The morphology of the jaw and palatine surfaces of eight species of metamorphosed anuran amphibians (*Microhyla ornata*, *M. rubra*, *Uperodon systoma*, *Tomopterna holandae*, *Polypedates maculatus*, *Rana cyanophlyctis*, *R. crassa* and *R. hexadactyla*) from a locality in south India, were examined by scanning electron microscopy. A relationship was observed between dentition (or its absence) and diet. In large prey feeders, there is a strong tendency towards the development of large secondary (or even tertiary) cusps, while myrmecophagous and termitophagous species lack teeth.

In the largely folivorous adults of *Rana hexadactyla*, secondary cusps are reduced to faint ridges and the tooth is cylindro-conical (as opposed to the recurved teeth with apices oriented lingually or distally in the insectivorous species). Although the phylogenetic relationships within members of the community are largely unknown, the oral armature is reflective of diet, and may represent adaptive suites.

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Introduction

The crania of vertebrates are best described as a feeding tool, and in the Anura, display an amazing diversity (Duellman & Trueb, 1986), apparently resulting from an early radiation of the group. Yet, the dentition of anuran amphibians has been suspected to be phylogenetically degenerate (Shaw, 1989), on the basis of their small size. The dentition of anuran amphibians has been characterized as polyphyodont (teeth constantly formed and shed, and therefore all stages in the cycle of tooth eruption may be present at any one time), each tooth consisting of a basal pedicel and a distal crown composed primarily of dentine, the crown capped with enamel or an enamel-like material, the general form bicuspid and spatulate (Duellman & Trueb, 1986). This study examines tooth morphology (and in some toothless species, the maxillary and prevomerine surfaces) by

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