

**THE USE OF THE RADULA IN THE TAXONOMY AND PHYLOGENY OF
GASTROPODS: CAUTIONARY CASES OF CONVERGENCE,
INTRASPECIFIC VARIATION AND PLASTICITY**

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ABSTRACT

The radula has been widely used as a source of characters in systematic studies of gastropods at all levels of the taxonomic hierarchy. This paper reviews new information about the evolution and intraspecific variability of the organ, and urges caution in the usage of such characters. In phylogenetic studies, striking cases of parallelism and convergence are known. Homologies among teeth of disparate radular types can be established from ontogenetic, maturational, teratological and phylogenetic studies. At low taxonomic levels, radulae have been considered constant within species, and have been used to define genera. However, it is now clear that radulae can show profound intraspecific variation, and sampling should be designed to assess this. The causes of this variability include rate of wear (influencing radular length), teratology, asymmetry, ontogenetic variation, sexual dimorphism and ecophenotypic plasticity. Radulae should not be used in isolation in systematic studies, but in combination with a range of other available characters.