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MORPHOLOGY OF CUTANEOUS SENSE ORGANS OF GEKKONID GECKOS (SQUAMATA: GEKKONIDAE): STRUCTURAL VARIATION IN THE MOST DIVERSE GEKKOTAN FAMILY

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ABSTRACT. Cutaneous sensory organs (sensilla) are mechanoreceptive structures present in the skin of squamate reptiles. In gekkotan lizards these structures are characterized by a raised eminence, the button, which bears one or more elongate hair-like bristles as well as a field of shorter spinules. Variation in the dimensions of these structures and in the number and elaborations of the bristles have been well characterized in the limbless pygopodid gekkotans and their tetrapodal relatives in the Diplodactylidae and Carphodactylidae, but patterns of variation in the Gekkonidae, by far the most diverse and species-rich clade of gekkotans, remain unexplored. We used scanning electron microscopy to examine and characterize the sensilla of 47 species representing 11 major clades of gekkonids, as well as representatives of other gecko families. Variation in morphology across gekkonid sensilla exceeds that observed in other gecko families, with bristle number varying from zero to 29 and bristle length from 3 to 50 μm . There is some phylogenetic signal in sensillar morphology, particularly within genera, but there is no association between mechanoreceptor dimensions and overall body size. In some taxa there is evidence that bristle length and bristle number are inversely related. Intraspecific variation in receptor size and configuration, both between individuals and across different body regions, is clearly present but remains insufficiently documented.

KEY WORDS: cutaneous sensilla; gekkos; Gekkonidae; Gekkota; mechanoreceptors; scanning electron microscopy

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