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LOWER INCISOR SHAPE IN *CALLICEBUS* AND PITHECIINAE

ABSTRACT: Callicebus *and* Pitheciinae *resemble each other in the possession of slender, long lower incisors, which can be considered as a synapomorphy. However, statistically the difference from other taxa is blurred, and furthermore comes into conflict with other morphological findings. Therefore, the hypothesis of a sistergroup relationship between these two taxa is questionable.*

KEY WORDS: Phylogeny – Systematics – Morphology – Callicebus – *Pitheciinae*

The phylogenetic position of Titi monkeys (*Callicebus*) within New World monkeys (Platyrrhini) is a problematic question, since most of their morphological characters are plesiomorphic. Many classical systematists assumed a close relationship to *Aotes* (see Hill, 1960: 98f), but this assumption is based on resemblance only and is thus unsatisfactory for Phylogenetic Systematics (*sensu* Hennig, 1966).

Rosenberger (1981) noticed similarities in the dentition of *Callicebus* and Pitheciinae (*Pithecia*, *Chiropotes*, and *Cacajao*), especially the narrow, long lower incisors. Although this feature is less marked in *Callicebus*, it may be interpreted as an apomorphic resemblance to pitheciines. There are also molecular investigations that point into this direction, e.g. phylogenetic reconstructions with ε-globin sequences (overview in Goodman *et. al.* 1998).

Within a phylogenetic investigation of New World monkeys, Wiesemüller and Rothe (1999) have statistically analysed the length and breadth proportions of the lower incisors in *Callicebus*, Pitheciinae, and other cebid monkeys. A comparison of allometric proportions showed that the resemblance between *Callicebus* and pitheciines is statistically significant. In a log-log-plot of the incisor length against the tranversal distance $I-I^2$ (*Figure 1*) these taxa have a higher length-to-breadth ratio. Strictly speaking, the regression lines have a higher slope, meaning that the proportions are positive allometric. On the other hand, this gradient difference is quite small and does not lead to a sharp distinction between *Callicebus*/Pitheciinae and other cebids. Furthermore, Wiesemüller and Rothe (1999) have found conflicting character differences that lead to sharper group separations: Firstly, pitheciines resemble the prehensile-tailed monkeys in the presence of a gap between index and middle finger (zygodactyly). And secondly, these zygodactylous taxa, together with *Cebus*, *Saimiri*, and Catarrhini, show special proportions in circumorbital regions with a thin interorbital pillar and a thick postorbital bar, both interpretable as derived traits.

Because the – admittedly significant – resemblance between *Callicebus* and pitheciines in lower incisor shape proves to be a poor argument when judged by the extent of discrimination, and other, sharper differences contradict a sistergroup relationship between these two taxa, we come to the conclusion that, from a morphological point of view, a phylogenetic closeness between titis and saki-uakaris seems unlikely. According to our findings, Pitheciinae are likely to be the sistergroup of gymnurous prehensile-tailed monkeys (in agreement with Ford, 1986), whereas the phylogenetic status of *Callicebus* is hardly understood.

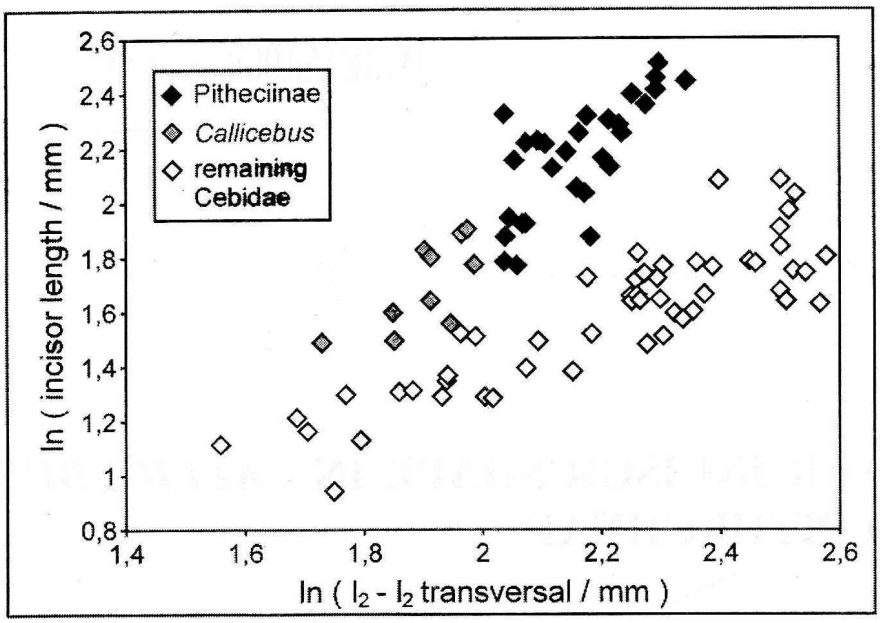

FIGURE 1. Double-logarithmic plot of the incisor length against the transversal distance I_2–I_2 in Pitheciinae, *Callicebus*, and other cebid monkeys. *Callicebus* and Pitheciinae show a positive allometry: with increasing body-size the lower incisors appear narrower and longer.

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