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NOTAS

INTESTINAL LENGTH OF FOUR SOUTH AMERICAN ANURAN SPECIES

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During the last thirty years, intra and interspecific variation in gut morphometrics has been extensively investigated (Starck, 1999). However, most of this research was conducted in birds, mammals and reptiles (see Piersma and Lindstrom, 1997; and Starck, 1999 for reviews); and to date, practically nothing is known about this topic in postmetamorphic amphibians (see Larsen 1992). The aim of this note is to report and compare intestinal length of four South American anuran species: *Leptodactylus ocellatus* (Leptodactylidae), *Hyla p. pulchella* (Hylidae), *Bufo* gr. *granulosus* (Bufonidae), and *Pseudis minutus* (Pseudidae).

In order to make trophic studies (da Rosa *et al.*, *in press*), postmetamorphic specimens of *L. ocellatus* (n = 103), *H. p. pulchella* (n = 43), *B.* gr. *granulosus* (n = 12), *P. minutus* (n = 21) were collected along Arroyo Espinas (34° 47' S, 55° 22' W), Uruguay, between August 1998 and February 2000. Animals were killed in the field with 2-phenoxy-ethanol and fixed in 10% formaldehyde. Then, specimens were measured (SVL, snout vent length), ventrally dissected and their intestines removed and measured (IL) to the nearest 0.1 cm. Comparisons among species were made of the intestinal length / snout-vent length ratios (IL/SVL), trough a Kruskal-Wallis median test and Mann-Whitney U tests.

The mean values of SVL, IL, and IL/SVL are shown in Table 1. Differences in IL/SVL among species were highly significant ($X^2 = 88.40$, df = 3, $p < 0.001$), and

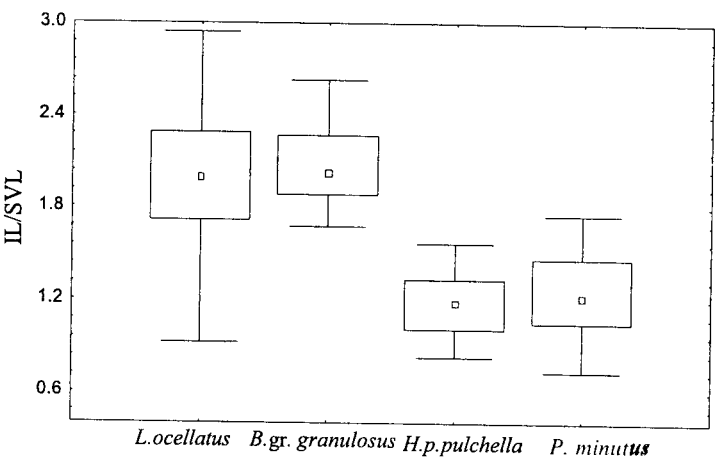

Figure 1. Median value (□), 25%-75% quartile range (□), and total range (‡) of IL/SVL, for each species.

Species	SVL (cm)	IL (cm)	IL / SVL	n
L. ocellatus	6.02 (! 2.12)	12.28 (! 6.06)	1.96 (! 0.47)	103
B. gr. *granulosus*	4.54 (! 1.33)	9.25 (! 2.28)	2.08 (! 0.27)	12
H. p. pulchella	3.61 (! 0.65)	4.29 (! 1.05)	1.19 (! 0.20)	43
P. minutus	3.55 (! 0.60)	4.58 (!1 .56)	1.27 (! 0.32)	21

Table 1. SVL, IL, and IL/SVL mean values (! sd) for the each species.

all the species pairs differed markedly, except *H. p. pulchella* with *P. minutus*, and *B.* gr. *granulosus* with *L. ocellatus* (Table 2). In this sense, *H. p. pulchella* and *P. minutus*, presented IL/SVL values close to 1.2, while *B.* gr. *granulosus* and *L. ocellatus* showed IL/SVL values close to 2.0 (Fig. 1).

Studies about gut morphometrics of vertebrate species indicates that, when interspecific analyses are conducted, diet and body size are important factors related to intestinal size variation (Nodzenski *et al.* 1989; Kramer and Bryant, 1995; Starck, 1999). Diet data for the species under study shows that *L. ocellatus* and *P. minuta* are closely similar and separated from *H. p. pulchella* and *B. fernandezae* (these latter species were also different among them) (Basso, 1990). The marked dietary differences between *L. ocellatus* and *B.* gr. *granulosus* were confirmed in our study location (da Rosa *et al.* 1999). Thus, diet does not appear to determine the observed species clusters based on IL/SVL, which is in agreement with the fact that food composition in postmetamorphic anurans only vary modestly (Toloza and Diamond, 1990). On the other hand, body length appears to be more related with the species grouping observed: the species pairs that did not differ in IL/SVL were those that imply species of similar body length (*H. p. pulchella* with *P. minuta*, and *B.* gr. *granulosus* with *L. ocellatus*). Probably, factors related to body size and shape could be sufficiently important in determinate the relative gut dimension of the species under study (see Nodzenski *et al.* 1989).

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Table 2. Results of the Mann-Whitney U test (Z statistics and its associated probability) for each pair of species. * Statistically significant difference.

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