



A new species of glassfrog, genus *Hyalinobatrachium* (Anura: Centrolenidae), from the Caribbean foothills of Costa Rica

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Abstract

We describe a new glassfrog belonging to the genus *Hyalinobatrachium* from the tropical wet forests and premontane rainforests of the Caribbean foothills of Costa Rica, at elevations between 400–800 m. The type locality is approximately 4 km west of Santa Clara, ca. 400 m a.s.l. (N 10.219, W 83.949). This new taxon is distinguished by its morphological characteristics, distinct advertisement call, and genetic distance (COI mRNA). The new species can be distinguished from other species of the genus *Hyalinobatrachium* by the combination of the following characters: (1) snout truncate in dorsal and lateral views; (2) granular dorsal skin; (3) parietal and cardinal peritonea transparent; (4) hand webbing formula **III** 2⁻–2⁺ **IV**; (5) in life having a uniform lime green dorsal surface that lacks any evident light or dark spots; (6) iris coloration silvery-white with fine dark spots or reticulation; (7) advertisement call consisting of a single tonal long metallic whistle-like note with a duration of 0.40–0.55 s (average 0.501 s) and a dominant frequency of 3.35–3.44 kHz (average 3.39 kHz); (8) highly divergent DNA sequences for the mitochondrial gene COI from other analysed members of the genus *Hyalinobatrachium*, with 12.4% divergence from its closest known species, *Hyalinobatrachium chirripoi*.

Key words: Amphibia, Central America, COI, *Hyalinobatrachium chirripoi*, *Hyalinobatrachium colymbiophyllum*, *Hyalinobatrachium diana* **sp. nov.**, integrative taxonomy

Resumen

Describimos una nueva rana de vidrio que pertenece al género *Hyalinobatrachium* que se encuentra en los bosques tropicales húmedos y bosques premontanos lluviosos de la vertiente caribeña de Costa Rica, entre los 400–800 m sobre el nivel del mar. La localidad tipo está ubicada aproximadamente 4 km hacia el oeste desde Santa Clara, ca. 400 m.s.n.m. (N 10.219, W 83.949). Este nuevo taxón se distingue por sus características morfológicas, canto y distancia genética (COI mRNA). La nueva especie se distingue de las otras especies de *Hyalinobatrachium* por la combinación de las siguientes características: (1) hocico truncado en vista dorsal y lateral; (2) piel granulada; (3) peritoneos parietal y cardíaco transparentes; (4) fórmula de la membrana de la mano **III** 2⁻–2⁺ **IV**; (5) en vida dorso uniforme verde y sin puntos claros o oscuros evidentes; (6) iris blanco con puntos o reticulación fina y oscura; (7) canto consistente en un largo silbido metálico con una duración de 0.40–0.55 s (promedio 0.501 s) y una frecuencia dominante de 3.35–3.44 kHz (promedio 3.39 kHz); (8) secuencias de ADN para el gen mitocondrial COI altamente divergentes respecto a los otros miembros analizados del género *Hyalinobatrachium*, con una divergencia del 12.4% con *Hyalinobatrachium chirripoi*, la especie conocida más cercana.

Palabras clave: América Central, Amphibia, *Hyalinobatrachium chirripoi*, *Hyalinobatrachium colymbiophyllum*, *Hyalinobatrachium diana* **sp. nov.**, secuencia COI, taxonomía integradora

Introduction

The Neotropics harbor a vast diversity of amphibian species, but undoubtedly one of the most charismatic taxa is

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APPENDIX I. Additional specimens examined.

- Hyalinobatrachium chirripoi*: COSTA RICA: Limón: KU 36865 (holotype), CRARC 1005, CRARC 1013, CRARC 1014.
- Hyalinobatrachium colymbiphyllum*: COSTA RICA: Alajuela: KU 23812 (holotype); Guanacaste: CRARC 0133; Limón: CRARC 1026; Puntarenas: CRARC 1000, CRARC 1001, CRARC 0132.
- Hyalinobatrachium fleischmanni*: COSTA RICA: Limón: CRARC 1006, CRARC 1023, CRARC 1036, CRARC 0184; Puntarenas: CRARC 1043.
- Hyalinobatrachium talamancae*: COSTA RICA: Cartago: KU 30887 (holotype); Limón: CRARC 1027, CRARC 1028, CRARC 1033, CRARC 0134, CRARC 0183.
- Hyalinobatrachium valerioi*: COSTA RICA: Limón: CRARC 1045, CRARC 0182, CRARC 0185; Puntarenas: CRARC 1002, CRARC 1003, CRARC 1029; San José: CRARC 1038, CRARC 1047.
- Hyalinobatrachium vireovittatum*: COSTA RICA: Puntarenas: CRARC 1008, CRARC 1009, CRARC 0131; San José: LACM 75141 (holotype).

APPENDIX II. DNA sequences and accession codes used for this study.

Genus	Species	Catalogue number	GenBank accession codes
<i>Cochranella</i>	<i>euknemos</i>	KRL 1054	FJ766601
<i>Hyalinobatrachium</i>	<i>chirripoi</i>	AJC 1841	KF604294
<i>Hyalinobatrachium</i>	<i>colymbiphyllum</i>	CH 6830	KF604296
<i>Hyalinobatrachium</i>	<i>colymbiphyllum</i>	CH 6844	KF604295
<i>Hyalinobatrachium</i>	<i>colymbiphyllum</i>	KLR 1557	FJ766710
<i>Hyalinobatrachium</i>	<i>colymbiphyllum</i>	USNM 572111	FJ766709
<i>Hyalinobatrachium</i>	<i>colymbiphyllum</i>	USNM 572121	FJ766713.1
<i>Hyalinobatrachium</i>	<i>colymbiphyllum</i>	USNM 572123	FJ766712
<i>Hyalinobatrachium</i>	<i>colymbiphyllum</i>	USNM 572125	FJ766711
<i>Hyalinobatrachium</i>	<i>colymbiphyllum</i>	USNM 572113	FJ766714
<i>Hyalinobatrachium</i>	<i>colymbiphyllum</i>	USNM 572116	FJ766715.1
<i>Hyalinobatrachium</i>	<i>colymbiphyllum</i>	CH 6773	KF604297
<i>Hyalinobatrachium</i>	<i>colymbiphyllum</i>	USNM 572112	FJ766708
<i>Hyalinobatrachium</i>	<i>dianae</i>	UCR 22033	KJ703103
<i>Hyalinobatrachium</i>	<i>fleischmanni</i>	JX564869i	JX564869
<i>Hyalinobatrachium</i>	<i>talamancae</i>	USNM 572134	FJ766718
<i>Hyalinobatrachium</i>	<i>valerioi</i>	CRARC 1045	KM925140
<i>Hyalinobatrachium</i>	<i>vireovittatum</i>	CH 6443	KF604298