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NOTA

FIRST RECORD OF '*Hemiancistrus' punctulatus* CARDOZO & MALABARBA, 1999 FOR URUGUAY (SILURIFORMES: LORICARIIDAE)

Wilson S. Serra[1,2]*, Fabrizio Scarabino[1,2], Sabina Wlodek[1], Giovanni Furtado[3] & Andrés Balao[4]

1 Sección Ictiología, Dpto. de Zoología, Museo Nacional de Historia Natural, CC 399, Montevideo, Uruguay.
2 Centro Universitario Regional del Este (CURE) - Sede Rocha, Ruta 15 y Ruta 9, Rocha, Uruguay.
3 Isac Ferreira esq. Ballet, Castillos, Rocha, Uruguay.
4 Saavedra s/n, entre Pedro de los Ríos y Sarachaga, Castillos, Rocha, Uruguay.

* Corresponding author: serraelbicho@gmail.com

ABSTRACT

Analyses of collections and recently captured specimens in an expedition to lower Yaguarón river basin in northeastern Uruguay, revealed the presence of the loricariid catfish *'Hemiancistrus' punctulatus* Cardozo & Malabarba, 1999, which represents the first record of this species for the country. We propose it as an endangered species for Uruguay considering its restricted distribution. Differences with *'Hemiancistrus' megalopteryx* are discussed.

Key-Words: '*Hemiancistrus*'; Uruguay; first record; conservation priority.

RESUMEN

Primer registro de '*Hemiancistrus' punctulatus* Cardozo & Malabarba, 1999 para Uruguay (Siluriformes: Loricariidae). El análisis de especímenes depositados en colecciones y sumado a los obtenidos en una reciente expedición a la cuenca baja del río Yaguarón en el noreste Uruguayo, reveló la presencia del pez loricárido *'Hemiancistrus' punctulatus* Cardozo & Malabarba, 1999, la cual representa el primer registro de esta especie para el país. Considerando su distribución restringida proponemos sea considerada una especie amenazada para Uruguay. Se discute sobre las diferencias entre esta especie y *'Hemiancistrus' megalopteryx.*

Palabras clave: '*Hemiancistrus*'; Uruguay; primer registro; prioridad para la conservación.

The locaricariid fish genus *Hemiancistrus* was created by Bleeker (1862) based on the species *Ancistrus medians* Kner, 1854, from Surinam. Since then, several species from different regions of South America have been included in this genus (Provenzano & Barriga-Salazar, 2017). Hypotheses of phylogenetic relationships within the subfamily Hypostominae point out that some of the species in the genus *Hemiancistrus* show close relationship with species of the genera *Hypostomus, Pterygoplichthys, Pseudancistrus, Baryancistrus, Hypancistrus* and *Peckoltia* (Lujan *et al*., 2015; Armbruster *et al*., 2015). Armbruster *et al*. (2015) consider *H. medians* as the only valid species of *Hemiancistrus*, and use the results obtained by Lujan *et al*. (2015) to propose three species groups to arrange the species of yet undefined generic placement: '*H*.' *chlorostictus* group from Uruguay, northern Argentina and southern Brazil, '*H*.' *landoni* group from Ecuador and '*H*.' *guahiborum* group from Colombia and Venezuela.

'Hemiancistrus' punctulatus Cardozo & Malabarba, 1999 ('*H*.' *chlorostictus* group) was described and it is only known from tributaries of Los Patos-Mirim lagoon system in Rio Grande do Sul, Brazil (Cardozo & Malabarba, 1999; Armbruster *et al*., 2015; Fricke *et al*., 2019). According to the literature, it differs from the other species of the group (except *'H'. megalopteryx*) by having dark spots on body and fins (*vs*. light spots in '*H'. votouro, 'H'. chlorostictus* and '*H'. meizospilos*, and without marks in '*H'. fuliginosus*) and by a smaller internares width (11.2-13.9% HL *vs*. 15.9-21.1% HL in '*H'. cerrado*) (Cardozo & Malabarba, 1999; Cardoso & Silva, 2004; de Souza *et al*., 2008). From *'H'. megalopteryx* it differs by the border of the lower lip smooth (*vs*. with numerous oval fleshy flaps and several small papillae), males with pectoral fin not reaching the tip of pelvic fins when depressed (*vs*. reaching the tip of pelvic fins), higher body depth at dorsal fin origin (18.3-22.2% *vs*. 14.3-17.3% SL), greater body width at anal origin (17.3-19.1% *vs*. 14.2-17.2% SL) and higher depth of caudal peduncle (10.4-11.9% *vs*. 8.8-10.0% SL) (Cardoso, 2004). The aim of the present

contribution is to report the occurrence of this species in Uruguay.

Analyzed specimens were collected with hand nets, euthanized by overdose in eugenol solution, fixed in 4 % formaline solution, preserved in 70 % ethanol, and housed in the collection of the Museo Nacional de Historia Natural de Montevideo (**MHNM**), Montevideo, Uruguay. Other analyzed specimens belongs to the collection of Facultad de Ciencias de la UdelaR (**ZVC-P**), Montevideo, Uruguay. Measurements (nearest mm) are straight-line distances taken with a digital caliper. Measurements follow Armbruster (2003), counts follow Cardozo & Malabarba (1999). Identifications were based on de Souza *et al*. (2008), Cardozo & Malabarba (1999), Cardoso & Silva (2004) and Cardoso (2004).

'Hemiancistrus' punctulatus Cardozo & Malabarba, 1999

Examined material: **MHNM 4122**, 3 ex., 35.3-54.0 mm SL, Paso Sarandí (32º26'25"S 53º36'46"W), Arroyo Sarandí de Barceló, Cerro Largo Department, Uruguay, col. W.S. Serra, G, Furtado & A. Balao, April 1 2018. **ZVC-P 4485**, 1 ex., 106.0 mm SL, Cañada del Vichadero (32º07'42"S 53º44'42"W), 1 km to Río Yaguarón, Cerro Largo Department, Uruguay, col. F. Scarabino, March 24-30 2002. **ZVC-P 6162**, 1 ex., 197.9 mm SL, Río Yaguarón (32º08'31"S 53º43'34"W), Paso Centurión, Cerro

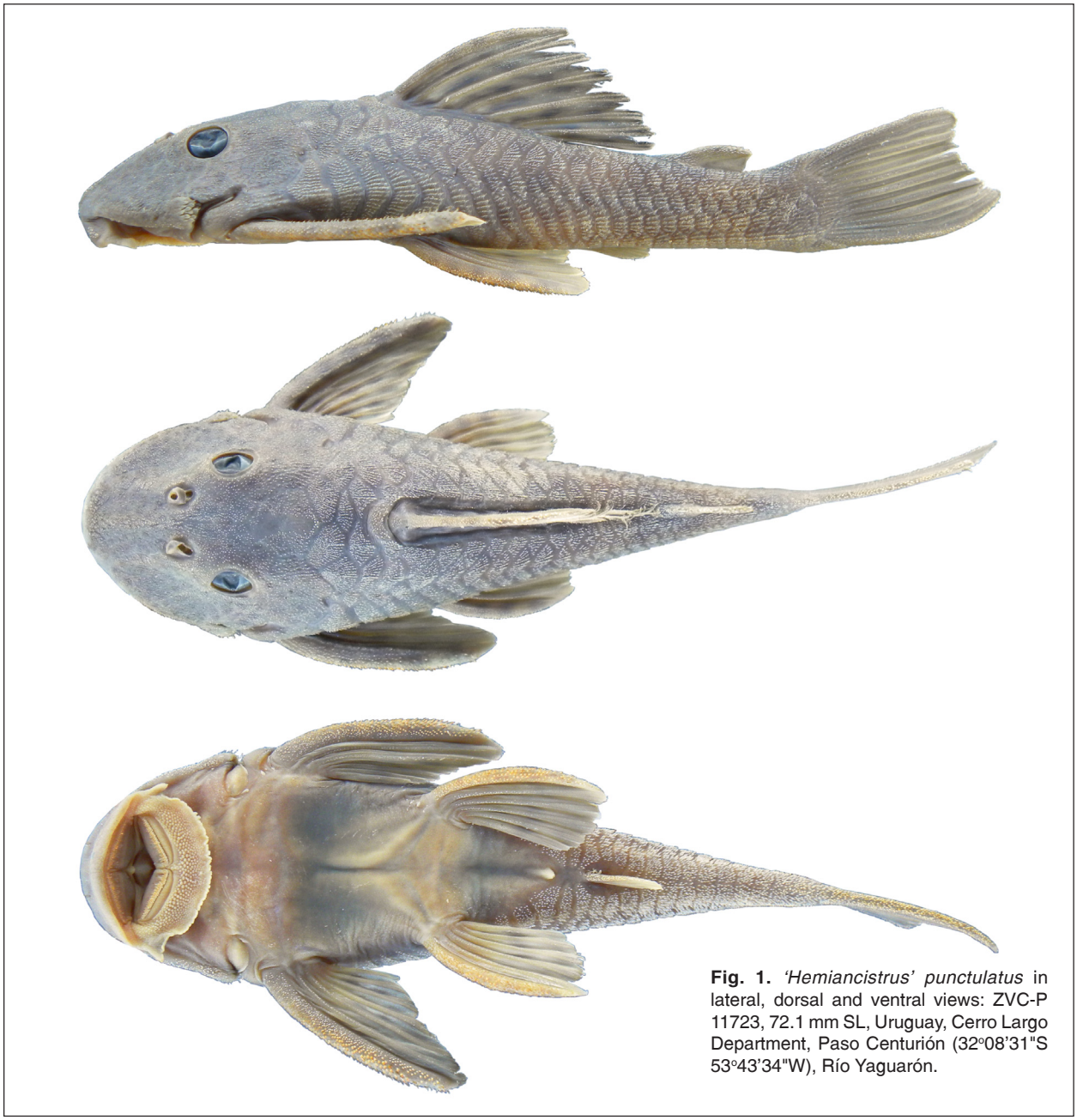

Fig. 1. *'Hemiancistrus' punctulatus* in lateral, dorsal and ventral views: ZVC-P 11723, 72.1 mm SL, Uruguay, Cerro Largo Department, Paso Centurión (32º08'31"S 53º43'34"W), Río Yaguarón.

Fig. 2. *'Hemiancistrus' punctulatus*. Uruguay, Cerro Largo Department, Paso Sarandí (32º26'25"S 53º36'46"W), Arroyo Sarandí de Barceló. Aquarium specimen, not preserved.

Largo Department, Uruguay, col. F. Achaval, 2005. **ZVC-P 10864**, 1 ex., 190.0 mm SL, Río Yaguarón (32º08'31"S 53º43'34"W), Paso Centurión, Cerro Largo Department, Uruguay. **ZVC-P 11723**, 1 ex. , 72.1 mm SL, Río Yaguarón (32º08'31"S 53º43'34"W), Paso Centurión, Cerro Largo Department, Uruguay, col. M. Loureiro, L. Ziegler, D. Díaz & W.S. Serra, March 18 2013.

Specimens analyzed present four of the five characters that diagnose '*H*'. *punctulatus* from the other species of the '*H.*' *chlorostictus* group (except *'H'. megalopteryx*): (1) presence of dark spots over a lighter background, distributed over lateral and dorsal plates and all fins; (2) absence of distinctive marks along the ventral body surface; (3) dorsal fin number I-7; (4) interopercle region with more than 35 hypertrophied odontodes. Lateral scutes (5) were 24-26 (*vs*. 25-26 in original description).

Concerning *'H'. megalopteryx* our specimens overlap the reported morphometric variation between it and '*H*'. *punctulatus.* Cardoso (2004) mentioned two autopomorphies that diagnoses *'H'. megalopteryx* from the other species of the group, "border of the lower lip with numerous oval fleshy flaps and several small papillae" and "males with pectoral fins reaching the tip of pelvic fins"; our two adult male specimens (ZVC-P 6162 and ZVC-P 10864) are consistent with it, lacking these characteristics, but juveniles specimens present

Fig. 3. Detail of mouth of a small specimen of *'Hemiancistrus' punctulatus* (ZVC-P 11723, 72.1 mm SL) showing the flaps in the lower lip. Scale bar = 5 mm.

flaps in the lower lip (Fig. 3) but not notoriously developed as in *'H'. megalopteryx.*

Morphometric measurements and meristics of '*H*'. *punctatus* from Uruguay partially matches those already reported (see Tables 1 and 2), with the following exceptions. de Souza *et al*. (2008) differentiated "*H*." *punctulatus* from '*H*'. *cerrado* by its internares width (11.2-13.9% HL *vs*. 15.9-21.1% HL in '*H'. cerrado*), but Uruguayan specimens present a wide range of variation (9.8-15.9% HL). Furthermore, our specimens have wide teeth counts in dentary (36-79) and premaxilla (33-66) than those recorded by Cardozo & Malabarba (1999) (dentary with 52-85 teeth; premaxilla with 47-88 teeth). Additionally, there are different but overlapping ranges in morphometrical proportions in characters like predorsal length, head length, cleithral width, thorax length, pectoral-spine length, caudal peduncle depth, body depth at dorsal fin origin, body width at anal fin origin, orbit diameter, snout length, internares width, interorbital width, head

Table 1. Morphometric data of specimens analized. Standard length is expressed in mm; measurements (numbered 2–27) are percentage of standard length; subunits of head measurements (numbered 28–38) are percentage of head length. Characters with * according to Cardozo & Malabarba (1999), all the other according to Armbruster (2003). Specimen 1, 2 and 3 = MHNM 4122; 4 = ZVC-P 11723; 5 = ZVC-P 4485; 6 = ZVC-P 6162; 7 = ZVC-P 10864.

	Character	Specimen						
		1	2	3	4	5	6	7
1	Standard length (mm)	54.0	43.8	35.3	72.1	106.0	197.9	190.0
2	Predorsal length	41.5	45.7	46.5	42.9	39.3	40.3	38.1
3	Head length	37.4	36.2	42.3	33.7	30.8	30.1	30.3
4	Head-dorsal length	4.7	7.0	7.2	8.5	8.2	10.2	9.0
5	Cleithral width	30.1	29.8	31.5	31.2	28.8	31.3	31.6
6	Head-pectoral length	25.9	30.2	33.0	28.3	26.0	26.0	28.9
7	Thorax length	22.7	24.3	23.5	21.9	25.5	20.3	21.6
8	Pectoral-spine length	28.5	30.4	28.3	31.7	31.3	41.1	36.6
9	Abdominal length	21.8	21.6	22.1	23.0	24.0	25.3	23.6
10	Pelvic-spine length	22.5	22.1	22.1	24.1	24.0	25.0	24.8
11	Postanal length	36.6	37.7	33.1	32.6	36.9	34.1	34.9
12	Anal-fin spine length	9.8	9.5	11.2	9.3	10.8	10.5	10.2
13	Dorsal-pectoral distance	26.0	30.4	29.9	26.7	20.7	25.3	24.6
14	Dorsal spine length	29.3	27.7	24.8	25.4	26.5	29.3	-
15	Dorsal-pelvic distance	18.4	17.9	14.9	20.0	17.9	20.9	17.8
16	Dorsal-fin base length	26.1	26.9	23.6	23.2	23.8	23.9	22.5
17	Dorsal-adipose distance	12.4	9.8	10.3	16.0	17.2	19.4	16.2
18	Adipose-spine length	14.0	15.9	12.8	9.7	9.2	8.9	8.1
19	Dorsal Adipose-caudal distance	23.1	22.2	21.9	14.4	15.4	15.7	15.1
20	Caudal peduncle depth	13.3	13.1	11.7	12.6	11.6	12.0	11.3
21	Caudal peduncle depth*	9.8	10.5	10.3	10.1	10.1	10.6	9.9
22	Ventral adipose-caudal distance	26.6	27.2	28.1	21.4	21.9	21.4	21.9
23	Adipose-anal distance	16.5	17.0	15.6	15.6	21.1	20.8	18.2
24	Dorsal-anal distance	13.5	14.1	14.7	13.7	14.4	14.4	14.8
25	Pelvic-dorsal distance	24.4	25.5	22.5	24.9	26.2	24.7	22.5
26	Body depth at dorsal-fin origin*	19.2	16.0	16.6	18.5	18.0	17.4	15.2
27	Body width at anal-fin origin*	12.5	11.7	12.0	13.5	17.9	16.1	14.8
28	Head-eye length	42.4	43.6	37.3	28.6	31.7	26.9	28.1
29	Orbit diameter	18.6	20.9	17.6	12.7	17.9	12.7	13.4
30	Snout length	55.1	59.3	53.1	46.9	57.1	47.0	47.0
31	Internares width	13.4	14.3	15.2	14.8	10.5	9.8	15.9
32	Interorbital width	54.1	61.4	47.1	35.6	44.6	34.1	33.9
33	Head depth	63.8	77.5	61.0	51.1	64.3	48.2	48.3
34	Mouth length	42.7	35.1	51.9	41.3	49.2	34.7	34.9
35	Mouth width	48.0	52.6	53.6	46.4	65.6	46.6	48.3
36	Barbel length	11.6	-	10.1	6.7	8.9	7.0	5.5
37	Dentary tooth cup length	23.2	20.4	18.0	18.1	25.1	17.1	21.8
38	Premaxillary tooth cup length	20.5	19,5	17.2	18.2	25.2	15.8	19.6

Table 2. Counts of specimens analized. Specimen 1, 2 and 3 = MHNM 4122; 4 = ZVC-P 4485; 5 = ZVC-P 6162; 6 = ZVC-P 10864; 7 = ZVC-P 11723.

	Character	Specimen						
		1	2	3	4	5	6	7
1	Left lateral scutes	25	24	24	25	25	26	25
2	Teeth on the left premaxilla	41	33	34	61	66	51	55
3	Teeth on the left dentary	43	36	39	62	79	51	61
4	Scutes at dorsal fin base	8	8	8	8	8	8	8
5	Scutes between dorsal and adipose fins	5	7	5	5	6	7	7
6	Scutes between adipose and caudal fins	2	2	2	2	4	3	3
7	Scutes at anal fin base	2	2	2	2	2	2	2
8	Scutes between anal and caudal fins	12	13	13	12	12	13	12
9	Dorsal fin rays	I-7	I-7	I-7	I-7	I-7	I-7	I-7
10	Caudal fin rays	I-14-I	I-14-I	I-14-I	I-13-I	I-14-I	I-14-I	I-14-I
11	Anal fin rays	I-4	I-4	I-4	I-4	I-4	I-4	I-4
12	Pelvic fin rays	I-5	I-5	I-5	I-5	I-5	I-5	I-5
13	Pectoral fin rays	I-6	I-6	I-6	I-6	I-6	I-6	I-6

depth and premaxillary tooth cup length. In most of the cases, the non-coincidence in the parameters is due to the smaller individuals here analyzed (35.3-72.1 mm SL), that not overlap the size range analyzed in previous works (82.5-190.1 mm SL in the original description).

Southernmost localities recorded for *'H'. punctulatus* were mouth of rio Telho (MZUSP 37857) and Passo do Centurião (MCP 19143) (Cardozo & Malabarba, 1999; de Souza *et al*., 2008), both into rio Jaguarão (the political limit between Brazil-Uruguay), but formerly they were only mentioned from Brazil.

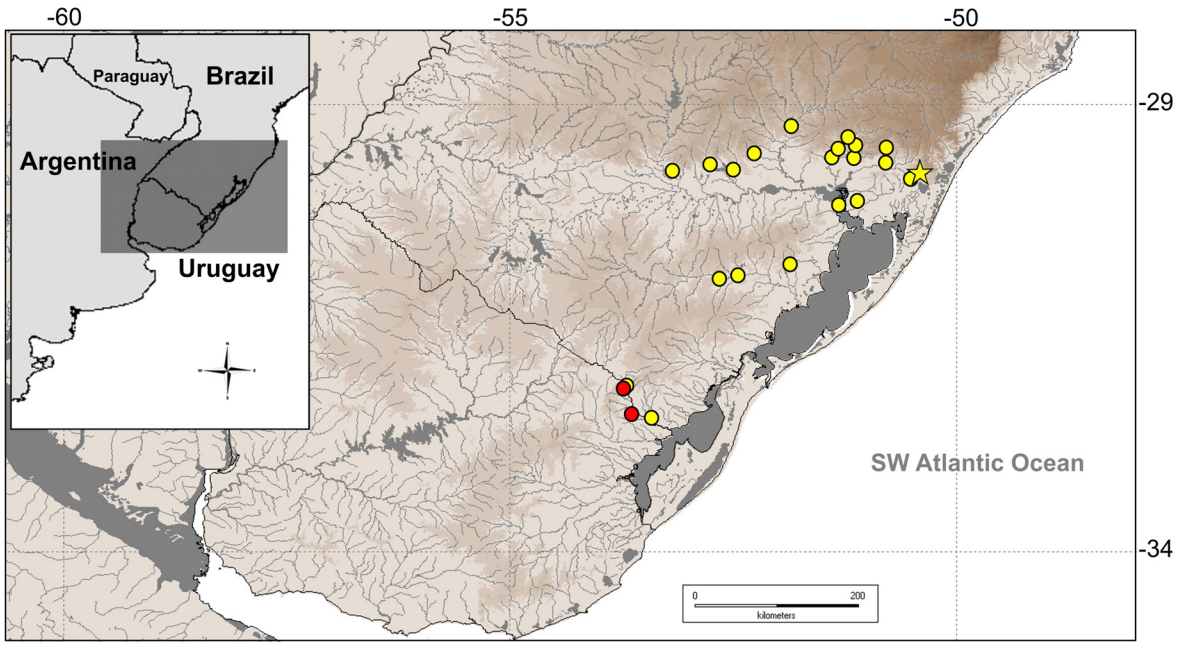

Fig. 4. Geographic distribution of "*Hemiancistrus*" *punctulatus*. Previous records in yellow (Cardozo & Malabarba, 1999; de Souza *et al*., 2008; star indicates type locality), new records in red.

Fig. 5. Arroyo Sarandí de Barceló at Paso Sarandí (32°26'25"S 53°36'46"W), Cerro Largo Department, Uruguay.

The present records confirms the presence of the species for Uruguayan territory (Fig. 4).

Specimens from Arroyo Sarandí de Barceló at Paso Sarandí were collected with *Characidium pterostictum* (Crenuchidae), *Cheirodon interruptus, Astyanax lacustris, Psalidodon eigenmanniorum, Deuterodon luetkenii, Pseudocorynopoma doriae, Bryconamericus iheringii* (Characidae), *Ancistrus* sp., *Hypostomus* sp., *Rineloricaria baliola, Rineloricaria longicauda* (Loricariidae), *Rhamdella eriarcha, Heptapterus mustelinus* (Heptapteridae), *Scleronema minutum* (Trichomycteridae), *Gymnogeophagus labiatus, Gymnogeophagus gymnogenys, Crenicichla punctata* (Cichlidae) and *Phalloceros caudimaculatus* (Poeciliidae). The collection site has clear water and rocky bottom, with scarce submerged vegetation, and shallower sectors with fast-running water, and depth between 10 cm to 2 m (Fig. 5).

According to the criteria defined by Soutullo *et al*. (2013), we propose that '*H*'. *punctulatus* must be considered a priority for conservation and an Endangered Species for the species list of Sistema Nacional de Áreas Protegidas (SNAP) of Uruguay: its global distribution occupies less than 200.000 km^2 (Criteria 1) and its occurrence area represents less than 10% of the national territory (Criteria 4).

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