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CHARACTERISTICS OF IDENTIFIED MORPHOLOGY OF GENUS *ACENTROGOBIUS BLEEKER, 1874* IN ESTUARY AND COASTAL OF NGHE AN PROVINCE, VIETNAM

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Analysis and identification of 90 specimens of genus *Acentrogobius bleeker, 1874* collected from estuary and coastal of Nghe An province, Vietnam. We have classified five species: *Acentrogobius caninus* (Valenciennes, 1837); *Acentrogobius chlorostigmatoides* (Bleeker, 1849); *Acentrogobius moloanus* (Herre, 1927); *Acentrogobius cf. viridipunctatus* (Valenciennes, 1837) and *Acentrogobius cf. viridipunctatus* (Valenciennes, 1837).

The species *Acentrogobius moloanus* (Herre, 1927) and *Acentrogobius cf. viridipunctatus* (Valenciennes, 1837) was first discovered in the study area and the north center region of Vietnam.

Keywords: *Acentrogobius caninus, Acentrogobius chlorostigmatoides, Acentrogobius moloanus, Acentrogobius viridipunctatus, Acentrogobius cf. viridipunctatus, Nghe An, Classification, North Central Vietnam.*

CARACTERISTICILE MORFOLOGIEI IDENTIFICATE A GENULUI *ACENTROGOBIUS BLEEKER, 1874* ÎN ESTUARUL ȘI COASTA PROVINCIEI NGHE AN DIN VIETNAM

Au fost identificate și analizate 90 de exemplare din genul *Acentrogobius bleeker, 1874* colectate din estuar și coasta provinciei Nghe An, Vietnam. Noi am clasificat cinci specii: *Acentrogobius caninus* (Valenciennes, 1837); *Acentrogobius chlorostigmatoides* (Bleeker, 1849); *Acentrogobius moloanus* (Herre, 1927); *Acentrogobius cf. viridipunctatus* (Valenciennes, 1837) și *Acentrogobius cf. viridipunctatus* (Valenciennes, 1837).

Speciile *Acentrogobius moloanus* (Herre, 1927) și *Acentrogobius cf. viridipunctatus* (Valenciennes, 1837) au fost descoperite pentru prima dată în zona de studiu și în nordul regiunii centrale a Vietnamului.

Cuvinte-cheie: *Acentrogobius caninus, Acentrogobius chlorostigmatoides, Acentrogobius moloanus, Acentrogobius viridipunctatus, Acentrogobius cf. viridipunctatus, Nghe An, clasificare, regiunea centrală de nord a Vietnamului.*

Introduction

According to fishbase.org (2018) [1], Genus *Acentrogobius bleeker, 1874* consists of 20 species: *Acentrogobius audax* Smith, 1959; *Acentrogobius caninus* (Valenciennes, 1837); *Acentrogobius cenderawasih* Allen & Erdmann, 2012; *Acentrogobius chlorostigmatoides* (Bleeker, 1849); *Acentrogobius cyanomos* (Bleeker, 1849); *Acentrogobius dayi* Koumans, 1941; *Acentrogobius ennorensis* Menon & Rema Devi, 1980; *Acentrogobius griseus* (Day, 1876); *Acentrogobius janthinopterus* (Bleeker, 1853); *Acentrogobius masoni* (Day, 1873); *Acentrogobius moloanus* (Herre, 1927); *Acentrogobius multifasciatus* (Herre, 1927); *Acentrogobius nebulosus* (Forsskal, 1775); *Acentrogobius pellidebilis* Lee & Kim, 1992; *Acentrogobius pflaumii* (Bleeker, 1853); *Acentrogobius simplex* (Sauvage, 1880); *Acentrogobius suluensis* (Herre, 1927); *Acentrogobius therezieni* Kiener, 1963; *Acentrogobius viganensis* (Steindachner, 1893); *Acentrogobius viridipunctatus* (Smith, 1831). In which 8 species: *Acentrogobius caninus* (Valenciennes, 1837); *Acentrogobius campbelli* (Jordan & Snyder, 1901); *Acentrogobius chlosostigmatoides* (Bleeker, 1849); *Acentrogobius herrei* Koumans, 1940; *Acentrogobius moloanus* (Herre, 1927); *Acentrogobius ornatus* (Rüppell, 1830); *Acentrogobius triangularis* (Weber, 1909); *Acentrogobius viridipunctatus* (Smith, 1831) mainly distribute in estuary and coastal in Vietnam by Nguyen Nhat Thi (2000) [2, 3]. 4 species have synonyms: *Acentrogobius triangularis* is a synonym of *Drombus triangularis* (Weber, 1909); *Acentrogobius herrei* is a synonyms of *Aulopareia koumansii* (Herre, 1937); *Acentrogobius campbelli* is a synonym of *Istigobius campbelli* (Jordan & Snyder, 1901); *Acentrogobius ornatus* is a synonym of *Istigobius ornatus* (Rüppell, 1830) [4, 5]. Therefore, Vietnam has only four species of *Acentrogobius*. In that condition, we insight to research the project "Characteristics of identified morphology of genus *Acentrogobius* Bleeker, 1874 in estuary and coastal of Nghe An province, Vietnam".

1. Material and methods

Fish specimens were collected mainly from fishing men in these survey regions. Fishing tools are fishnets, rackets, casting – net, multi size fishing – rods and also professional tools of fishermen such as: fishing basket,

fishing traps, etc. Some other specimens was bought from local people. All samples were given full information in field trip diary, sampling notes, taking pictures and fixed with formaline 8- 10% and reserving with formaline 5% in Biological Museum Vinh University, Vinh City, Vietnam.

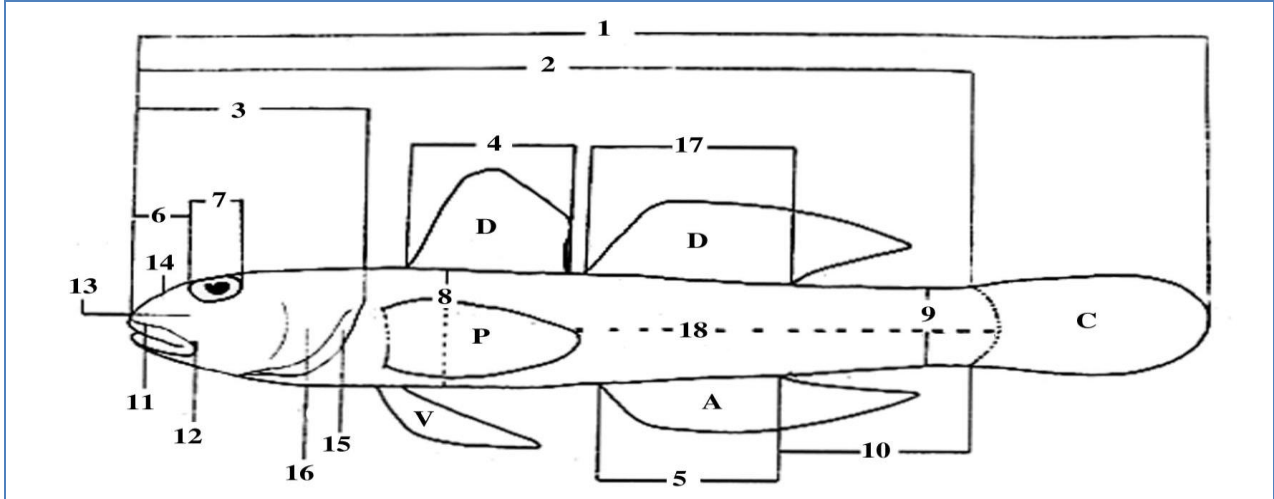


Fig.1. Measurements taken on *Acentrogobius* by Nguyen Nhat Thi (2000).

Note of figure 1: 1. Total length L; 2. Standard length L_0 ; 3. Head length; 4. Length of first dorsal fin; 5. Length of anal fin; 6. Snout length; 7. Diameter of eye; 8. Body depth; 9. Caudal peduncle depth; 10. Length of caudal peduncle; 11. Premaxillary; 12. Maxillary; 13. Preorbital; 14. Nostrils; 15. Opercle; 16. Preopercle; 17. Length of second dorsal fin; 18. Scales in longitudinal row. P. Pectoral fins; D. Dorsal fin; C. Caudal fin; V. Pelvic fins; A. Anal fin.

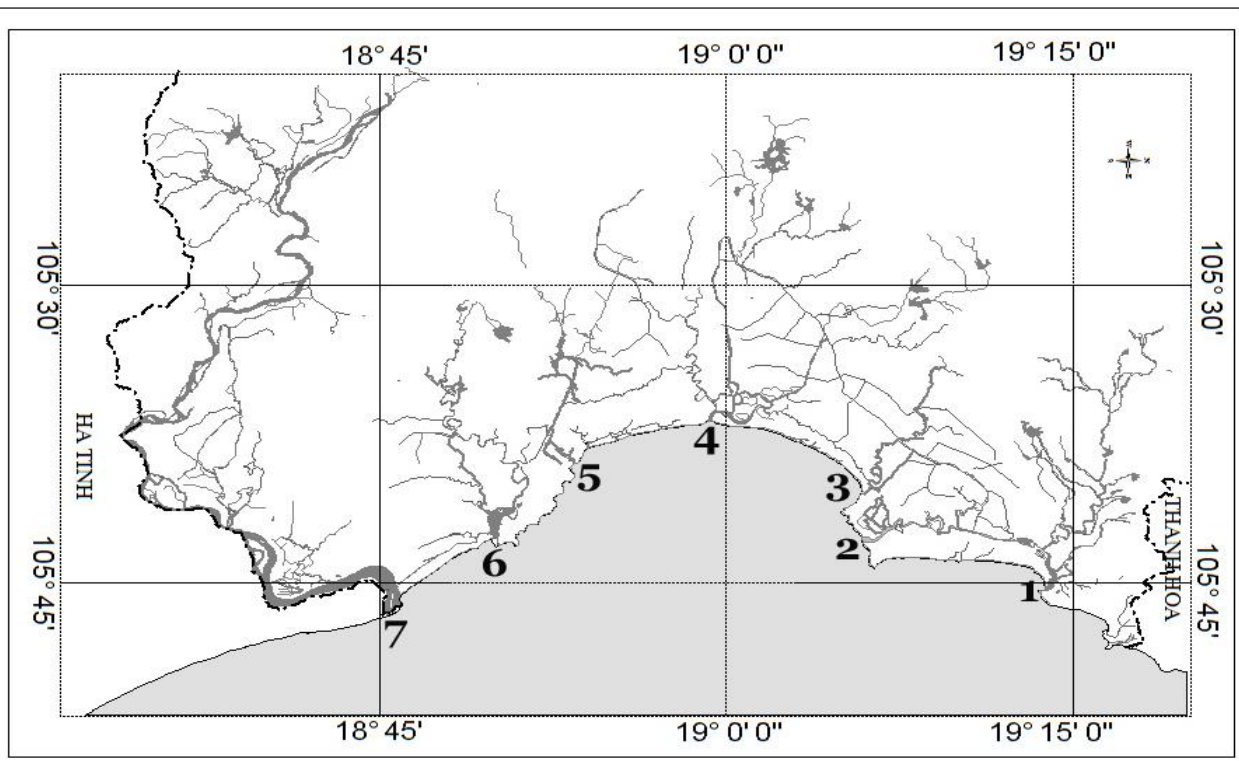


Fig.2. Sampling locality of *Acentrogobius* in estuary and coastal of Nghe An province.

Note: 1 = LC (Lạch Cờn); 2 = LQ (Lạch Quèn); 3 = LT (Lạch Thơi - Quỳnh Thọ); 4 = DN (Diễn Ngọc); 5 = DB (Diễn Bích); 6 = NQ (Nghị Quang); 7 = CH (Cửa hội)

We have carried out samplings (90 specimens) at 7 points in estuary and coastal of Nghe An province, North Central of Vietnam, each sampling point is from 0.5 km to 1 km.

We use the following materials to identify species: Ho Anh Tuan (2016) [6]; Nguyen Nhat Thi (2000) [3]; Kottelat M.(1989) [7]; Mai Dinh Yen (1978) [8]; Nguyen Van Hao (2005) [9]; Rainboth J. (1996) [10]; Tetsji Nakabo (2002) [11].

2. Results and discussion

2.1. *Acentrogobius caninus* (Valenciennes, 1837)

Synonyms. *Gobius caninus* Valenciennes, 1837; *Amoya caninus* Valenciennes, 1837; *Ctenogobius caninus* Valenciennes, 1837; *Yongeichthys caninus* Valenciennes, 1837; *Gobius philipi* Tirant, 1883; *Gobius zanzibarensis* Liénard, 1891.

Material examined. (14 specimens); CH - 37; LC - 48; LQ - 118; LC - 32; LC - 40; LQ - 176; LC - 41; LC - 34; LC - 43; LC - 35; LC - 108; LC - 107; LQ - 121; LC - 106. Nguyen Thi Lam, Nguyen Thi Thao Nguyen, Dang Thi Minh Oanh, 10 to 12 August 2016; 06 - 08 December 2016; 10 - 12 April 2017.

Meristics

First dorsal: VI; Second dorsal: I. 9.5; Anal: I. 9.5; Pectoral: 18 - 19; Pelvic: I.5; Caudal: 13 - 15. Scales in lateral series: 29 - 30; Transverse scale rows: 10 - 15; Predorsal scale rows: 20 - 23; Scales along caudal peduncle: 9 - 10; Cheek scale rows: 6 - 8.



Fig.3. *Acentrogobius caninus* (Valenciennes, 1837).

Morphometric

Standard length = 4.88 (4.61 - 5.18) Body depth of first dorsal fin = 4.79 (4.45 - 5.36) Body depth of second dorsal fin = 3.46 (3.28 - 3.74) Lateral head length = 6.30 (6.01 - 6.70) Dorsal head length = 4.27 (4.05 - 4.49) Anal fin base = 7.74 (6.88 - 8.45) First dorsal fin base = 3.80 (3.65 - 3.99) Second dorsal fin base; Lateral head length = 3.06 (2.87 - 3.23) Snout length = 2.69 (1.68 - 3.19) Eye diameter = 4.13 (3.24 - 4.70) Fleshy interorbital width = 1.89 (1.80 - 2.08) Postorbital = 1.35 (1.32 - 1.49) Head width in maximum = 3.74 (3.27 - 3.92) Lower jaw length; Fleshy interorbital width = 1.06 (1.02 - 1.09) Eye diameter; First dorsal fin base = 0.49 (0.47 - 0.55) Second dorsal fin base = 0.55 (0.52 - 0.59) Anal fin base.

Short description

Body moderately elongate and compressed. Head slightly compressed; jaws subequal; gill opening not extending anteriorly to a vertical through posterior margin of preopercle; single or some enlarged caninoid teeth on each side of lower jaw; tongue truncate. Pelvic fins united medially; frenum present. Scales ctenoid, excluding those on nape, pectoral base and breast cycloid; operculum may be scaled, Sensory canals and pores present on head; longitudinal pattern of sensory - papillae rows on cheek, some rows multiple; aggregation of sensory papillae just behind chin. Color: large ovoid black spot just above dorsalmost of gill opening;

Characterized by pale grey body with five diffuse brown saddles along back; midside with 4-5 diffuse brown blotches; head and body with scattered white spots.

2.2. *Acentrogobius chlorostigmatoides* (Bleeker, 1849)

Synonyms. *Gobius chlorostigmatoides* Bleeker, 1849; *Amoya chlorostigmatoides* (Bleeker, 1849); *Creisson chlorostigmatoides* (Bleeker, 1849)

Material examined. (12 specimens); CH - 49; CH - 24; CH - 43; DB - 31; CH - 25; DB - 29; DB - 16; LC - 103; LC - 30; DN- 60; DN- 69; DN- 72. Nguyen Thi Lam, Nguyen Thi Thao Nguyen, Dang Thi Minh Oanh 10 to 12 August 2016; 06 - 08 December 2016; 10 - 12 April 2017.

Meristics

First dorsal: VI; Second dorsal: I. 10.5; Anal: I. 9.5; Pectoral: 19 - 21; Pelvic: I.5; Caudal: 15 - 17. Scales in lateral series: 34 - 37; Transverse scale rows: 14 - 16; Predorsal scale rows: 23 - 27; Scales along caudal peduncle: 6 - 9; Cheek scale rows: 6 - 8.



Fig.4. *Acentrogobius chlorostigmatoides* (Bleeker, 1849).

Morphometric

Standar length = 4.69 (4.38 - 4.99) Body depth of first dorsal fin = 4.63 (4.28 - 5.14) Body depth of second dorsal fin = 3.34(3.16 - 3.46) Lateral head length = 7.80 (7.33 - 8.38) Dorsal head length = 4.59 (4.19 - 4.85) Anal fin base = 7.37 (6.49 - 8.09) First dorsal fin base = 3.62 (3.42 - 3.87) Second dorsal fin base; Lateral head length = 3.19 (3.05 - 3.33) Snout length = 3.48 (2.31 - 5.87) Eye diameter = 4.32(3.77 - 5.56) Fleshy interorbital width = 1.62 (1.58 - 1.66) Postorbital = 1.33 (1.31 - 1.36) Head width in maximum = 2.48 (2.39 - 2.80) Lower jaw length; Fleshy interorbital width = 1.23 (1.21 - 1.25) Eye diameter; First dorsal fin base = 0.49 (0.46 - 0.53) Second dorsal fin base = 0.62 (0.60 - 0.65) Anal fin base.

Short description

Body moderately elongate, compressed posteriorly. Head slightly compressed; jaws subequal; gill opening not extending anteriorly to a vertical through preopercular margin. Pelvic fins united medially. Scales ctenoid, excluding those on nape, pectoral base and breast cycloid; cheek and operculum naked. Sensory canals and pores present on head; distinct transverse sensory- papillate rows on cheeks; a pair of short longitudinal sensory papillae rows just behind chin.

2.3. *Acentrogobius moloanus* (Herre, 1927)

Synonyms. *Aparrius moloanus* Herre, 1927; *Amoya moloanus* (Herre, 1927); *Ctenogobius moloanus* (Herre, 1927); *Mindorogobius lopezi* Herre, 1945; *Amoya lopezi* (Herre, 1945)

Material examined. (27 specimens); DB - 47; DB - 40; DB - 43; DB - 44; DB - 57; DB - 41; DB - 48; DB - 42; CH - 38; DB - 54; DB - 22; CH - 06; DB-45; DB-52; DN-43; DB-23; DB-56; DB-51; DB-55; DB-61; DB-50; DN-49; DB-49; DB-58; DN-33; DB-46; DB-59. Nguyen Thi Lam, Nguyen Thi Thao Nguyen, Dang Thi Minh Oanh 10 to 12 August 2016; 06 - 08 December 2016; 10 - 12 April 2017.

Meristics

First dorsal: VI; Second dorsal: I. 10.5; Anal: I. 9.5; Pectoral: 16 - 19; Pelvic: I.5; Caudal: 14 - 17. Scales in lateral series: 47 - 52; Transverse scale rows: 17 - 23; Scales along caudal peduncle: 12 - 15.



Fig.5. *Acentrogobius moloanus* (Herre, 1927).

Morphometric

Standar length = 5.57 (4.88 - 6.58) Body depth of first dorsal fin = 5.51 (4.97 - 6.38) Body depth of second dorsal fin = 4.16 (3.95 - 4.47) Lateral head length = 7.72 (7.10 - 8.69) Dorsal head length = 4.67 (4.16 - 5.15) Anal fin base = 6.49 (5.99 - 7.22) First dorsal fin base = 3.42(3.16 - 3.77) Second dorsal fin base; Lateral head length = 2.81 (2.67 - 3.01) Snout length = 2.50 (1.98 - 2.92) Eye diameter = 3.56 (3.17 - 3.91) Fleshy interorbital width = 1.72 (1.64 - 1.82) Postorbital = 1.25 (1.21 - 1.31) Head width in maximum = 2.51 (2.40 - 2.62) Lower jaw length; Fleshy interorbital width = 1.27 (1.23 - 1.30) Eye diameter; First dorsal fin base = 0.53 (0.51 - 0.55) Second dorsal fin base = 0.72 (0.69 - 0.76) Anal fin base.

Short description

Body elongate, compressed posteriorly. Head slightly compressed; jaws subequal; snout protruding beyond upper jaw; gill opening extending anteriorly to a vertical through preopercular margin. Pelvic fins united medially. Scales ctenoid, excluding those on anterior part of body cycloid; head naked. Sensory canals and pores present on head; longitudinal pattern of sensory - papillae rows on cheek; transverse row of sensory - papillae row just behind chin. Color: Body pale grayish brown with 2 - 3 longitudinal rows of dusky spots, bright blue spots on head and body.

Table 1

Morphometric data of *A. chlorostigmatoides*; *A. caninus* and *A. moloanus*

% Stander length	<i>A. chlorostigmatoides</i> (n = 12)			<i>A. caninus</i> (n = 14)			<i>A. moloanus</i> (n = 27)		
	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean
Total length	132.61	136.57	134.70	129.53	133.92	131.54	135.24	138.96	137.07
Lateral head length	28.87	31.62	29.97	26.75	30.45	28.97	22.35	25.33	24.05
Dorsal head length	11.94	13.65	12.85	14.93	16.65	15.89	11.50	14.08	12.99
Snout to first dorsal origin	37.29	40.30	39.09	32.97	37.85	34.78	32.58	35.46	34.18
Snout to 2nd dorsal origin	58.03	60.79	59.65	54.64	57.03	55.62	54.29	57.15	55.84
Snout to anal fin origin	63.03	64.92	64.07	55.40	60.59	57.23	59.32	63.90	61.38
Snout to anus	57.55	60.46	59.14	52.18	55.14	53.56	55.01	58.36	56.35
Prepelvic length	31.74	34.44	32.90	30.24	32.90	31.29	26.40	29.76	28.49
Length of caudal peduncle	16.02	18.87	17.62	16.63	18.29	17.64	15.14	18.96	17.23
Depth of caudal peduncle	13.12	15.77	14.71	12.94	14.13	13.53	12.03	15.39	13.72

First dorsal fin base	12.37	15.40	13.61	11.83	14.53	12.96	13.84	16.69	15.44
Second dorsal fin base	25.85	29.22	27.68	25.07	27.40	26.32	26.53	31.65	29.30
Caudal to 2nd dorsal origin	12.15	13.84	13.19	13.75	17.49	16.21	12.82	16.65	14.82
Anal fin base	20.61	23.84	21.84	22.26	24.70	23.46	19.41	24.01	21.46
Caudal fin length	33.66	37.21	35.90	29.02	32.77	30.78	35.26	39.04	37.02
Pelvic fin length	20.88	23.68	22.14	20.51	22.78	21.50	17.28	20.24	18.74
Pectoral fin length	21.90	25.16	23.92	22.09	25.95	24.63	21.06	24.62	22.90
Body depth of P fin origin	20.13	23.66	21.65	19.20	23.12	20.92	16.98	19.94	18.71
Body depth of anal fin origin	18.98	22.20	20.51	18.60	23.50	21.10	15.46	18.87	17.37
Body width of anal fin origin	11.97	15.41	13.50	11.11	16.10	14.03	10.14	13.91	12.69
Distance of Pelvic to Anal	29.15	32.91	31.12	23.01	28.32	24.77	30.43	34.95	32.81
Body depth of first dorsal fin	20.02	22.85	21.40	19.29	21.69	20.51	15.21	20.50	18.10
Body depth of second D fin	19.47	23.34	21.70	18.66	22.48	20.94	15.68	20.13	18.24
Snout length	8.70	9.92	9.40	8.82	10.13	9.48	7.42	9.12	8.57
Eye diameter	4.36	6.43	5.77	5.46	8.10	6.68	4.89	6.07	5.35
Postorbital	17.50	19.82	18.55	14.23	16.17	15.32	12.30	14.79	13.99
Cheek depth	13.56	15.46	14.17	11.89	13.15	12.52	10.54	12.64	11.81
Head width in maximum	21.77	23.53	22.56	19.74	22.39	21.51	17.29	20.42	19.23
Fleshy interorbital width	5.33	7.84	7.07	5.82	8.60	7.09	6.18	7.80	6.78
Bony interorbital width	1.72	2.76	2.40	1.41	2.12	1.74	1.65	2.22	1.87
Lower jaw length	11.30	12.71	12.08	6.95	8.99	7.76	8.84	10.25	9.58
% Lateral head length									
Dorsal head length	41.23	44.77	42.87	53.12	56.84	54.88	50.04	56.52	54.00
Snout length	30.04	32.77	31.36	30.93	34.87	32.75	33.21	37.47	35.64
Eye diameter	14.73	21.99	19.27	20.01	28.97	23.07	20.03	24.52	22.23
Postorbital	60.22	63.20	61.87	48.16	55.55	52.88	55.06	60.88	58.17
Cheek depth	45.93	49.45	47.27	41.76	44.78	43.23	47.18	50.94	49.09
Fleshy interorbital width	18.00	26.53	23.61	21.29	30.89	24.53	25.56	31.50	28.20
Lower jaw length	35.74	41.80	40.33	25.49	30.62	26.76	38.10	41.67	39.83
% in caudal peduncle length									
Caudal peduncle depth	81.41	84.53	83.44	74.84	78.84	76.72	77.12	81.68	79.60

2.4. *Acentrogobius viridipunctatus* (Valenciennes, 1837)

Synonyms. *Gobius viridipunctatus* Valenciennes, 1837; *Ctenogobius viridipunctatus* (Valenciennes, 1837); *Acentrogobius sealei* (Smith, 1831); *Gobius chlorostigma* Bleeker, 1849; *Creisson sealei* Smith, 1931

Material examined. (17 specimens); LT - 16; LT - 14; LT - 13; LT - 29; LT - 20; CH - 16; LT - 24; LT - 21; LT - 03; LT - 05; LT - 27; CH - 13; LT - 17; CH - 15; LT - 15; LT - 02; CH - 12. Nguyen Thi Lam, Nguyen Thi Thao Nguyen, Dang Thi Minh Oanh 10 to 12 August 2016; 06 - 08 December 2016; 10 - 12 April 2017.

Meristics

First dorsal: VI; Second dorsal: I. 9.5 - 10.5; Anal: I. 9 - 9.5; Pectoral: 18 - 19; Pelvic: I.5; Caudal: 14 - 15. Scales in lateral series: 41 - 52; Transverse scale rows: 16 - 23; Predorsal scale rows: 30 - 39; Scales along caudal peduncle: 14 - 22; Cheek scale rows: 10 - 18.



Fig.6. *Acentrogobius viridipunctatus* (Valenciennes, 1837)

Morphometric

Standar length = 4.16 (3.60 - 4.71) Body depth of first dorsal fin = 4.40 (3.60 - 4.89) Body depth of second dorsal fin = 3.42 (3.09 - 3.85) Lateral head length = 6.75 (5.74 - 8.08) Dorsal head length = 5.41 (4.77 - 6.37) Anal fin base = 7.18 (6.17 - 8.45) First dorsal fin base = 4.07 (3.84 - 4.34) Second dorsal fin base; Lateral head length = 2.81 (2.26 - 3.13) Snout length = 3.86 (3.06 - 4.70) Eye diameter = 4.84 (4.02 - 5.80) Fleshy interorbital width = 1.80 (1.45 - 1.91) Postorbital = 1.36 (1.26 - 1.48) Head width in maximum = 2.62 (2.50 - 2.86) Lower jaw length; Fleshy interorbital width = 1.07 (1.03 - 1.15) Eye diameter; First dorsal fin base = 0.57 (0.50 - 0.65) Second dorsal fin base = 0.76 (0.67 - 0.85) Anal fin base.

Short description

Body moderately elongate and compressed. Head slightly compressed, jaws subequal, gill opening extending anteriorly to a vertical through posterior margin of preopercle, single or some enlarged caninoid teeth on each side of lower jaw, tongue truncate. Pelvic fins united medially, frenum present. Scales ctenoid, excluding those on head, nape, pectoral base and breast cycloid, upper part of cheek and operculum scaled. Sensory canals and pores present on head; distinct transverse sensory - papillae rows on cheek; aggregation of sensory - papillae just behind chin. Color: Numerous bright light green or blue spots on head body. L-shaped dusky marking below eye.

2.5. *Acentrogobius* cf. *viridipunctatus* (Valenciennes, 1837)

Synonyms. *Gobius viridipunctatus* Valenciennes, 1837; *Ctenogobius viridipunctatus* (Valenciennes, 1837); *Acentrogobius sealei* (Smith, 1831); *Gobius chlorostigma* Bleeker, 1849; *Creisson sealei* Smith, 1931

Material examined. (20 specimens); LT - 04; LT - 08; LT - 28; CH - 22; DN - 50; CH - 36; DN - 34; BD - 32; CH - 29; DN - 42; DB - 13; CH - 27; DN - 39; DB - 20; LQ - 45; LQ - 01; NQ - 16; NQ - 14; NQ - 15;

NQ - 20. Nguyen Thi Lam, Nguyen Thi Thao Nguyen, Dang Thi Minh Oanh 10 to 12 August 2016; 06 - 08 December 2016; 10 - 12 April 2017.

Meristics

First dorsal: VI; Second dorsal: I. 9.5 - 10.5; Anal: I. 9 - 9.5; Pectoral: 18 - 19; Pelvic: I.5; Caudal: 14 - 15. Scales in lateral series: 47 - 51; Transverse scale rows: 18 - 22; Predorsal scale rows: 35 - 39; Scales along caudal peduncle: 17 - 23; Cheek scale rows: 13 - 17.



Fig.7. *Acentrogobius* cf. *viridipunctatus* (Valenciennes, 1837).

Morphometric

Standar length = 4.60 (4.08 - 5.00) Body depth of first dorsal fin = 4.88 (4.27 - 5.37) Body depth of second dorsal fin = 3.24 (3.07 - 3.41) Lateral head length = 6.46 (5.75 - 7.58) Dorsal head length = 5.66 (5.07 - 6.37) Anal fin base = 7.41 (6.71 - 8.30) First dorsal fin base = 4.15 (3.74 - 4.44) Second dorsal fin base; Lateral head length = 3.11 (2.81 - 3.80) Snout length = 3.22 (2.82 - 4.44) Eye diameter = 4.83 (4.12 - 5.51) Fleshy interorbital width = 1.93 (1.78 - 2.04) Postorbital = 1.41 (1.25 - 1.56) Head width in maximum = 2.90 (2.56 - 3.68) Lower jaw length; Fleshy interorbital width = 1.05 (0.89 - 1.19) Eye diameter; First dorsal fin base = 0.56 (0.50 - 0.61) Second dorsal fin base = 0.77 (0.66 - 0.85) Anal fin base.

Short description

Body moderately elongate, compressed posteriorly. Head sub-cylindrical; jaws subequal; gill opening extending anteriorly to a vertical though preopercular margin. Pelvic fins united medially, frenum present. Scales ctenoid, excluding those on head, nape, pectoral base and breast cycloid, upper part of cheek and operculum scaled. Sensory canals and pores present on head; distinct transverse sensory - papillae rows on cheek; aggregation of sensory - papillae just behind chin. Color: Numerous bright light green or blue spots on head body. L-shaped dusky marking below eye.

Table 2

Morphometric data of *A. viridipunctatus* and *A. cf. viridipunctatus*

% SL	<i>A. viridipunctatus</i> (n = 17)			<i>A. cf. viridipunctatus</i> (n = 20)		
	Mean	Min	Max	Mean	Min	Max
Total length	133.09	129.68	136.72	132.68	127.98	136.37
Lateral head length	29.30	25.95	32.39	30.90	29.34	32.53

Dorsal head length	14.93	12.38	17.41	15.54	13.20	17.39
Snout to first dorsal origin	40.26	38.04	49.29	40.83	38.67	43.42
Snout to 2nd dorsal origin	60.09	57.65	64.51	60.89	57.61	63.00
Snout to anal fin origin	65.82	62.83	73.05	65.79	62.56	68.82
Snout to anus	61.10	58.19	66.97	59.94	56.10	62.82
Prepelvic length	31.62	18.79	35.07	33.61	31.36	37.15
Length of caudal peduncle	18.87	16.05	22.36	18.41	16.87	19.52
Depth of caudal peduncle	13.30	12.17	16.68	13.08	11.55	14.26
First dorsal fin base	14.03	11.83	16.22	13.53	12.05	14.90
Second dorsal fin base	24.62	23.05	26.04	24.14	22.51	26.73
Caudal to 2nd dorsal origin	15.95	14.77	17.94	15.96	12.77	18.43
Anal fin base	18.60	15.70	20.96	17.73	15.70	19.72
Caudal fin length	33.65	29.70	35.54	32.34	26.70	36.48
Pelvic fin length	21.75	20.25	23.33	21.25	18.75	22.59
Pectoral fin length	23.57	17.22	26.53	23.79	21.78	25.62
Body depth of pelvic fin origin	23.90	21.30	27.09	22.56	21.15	23.62
Body depth of anal fin origin	20.62	19.15	23.02	19.15	16.51	20.82
Body width of anal fin origin	15.91	13.77	21.34	13.96	11.53	15.59
Distance of Pelvic to Anal	34.66	29.47	39.83	32.37	29.56	36.31
Body depth of first dorsal fin	24.21	21.23	27.78	21.79	19.99	24.49
Body depth of second dorsal fin	22.88	20.44	27.75	20.57	18.63	23.40
Snout length	10.51	9.24	13.47	9.99	7.92	11.15
Eye diameter	5.69	5.00	6.17	6.13	4.81	6.78
Postorbital	16.32	14.94	21.31	15.99	15.07	17.27
Cheek depth	14.02	12.83	15.56	13.83	12.35	15.03
Head width in maximum	21.60	20.07	24.60	21.96	19.54	25.13
Fleshy interorbital width	6.08	5.57	6.64	6.41	5.68	7.42
Bony interorbital width	2.54	2.09	2.85	2.49	2.08	3.08
Lower jaw length	11.21	10.03	12.35	10.76	8.72	11.96
% HL						
Dorsal head length	50.91	46.15	58.49	50.32	44.36	55.06
Snout length	35.89	31.94	44.34	32.34	26.29	35.59
Eye diameter	19.47	15.44	23.76	19.86	15.81	21.98
Postorbital	55.69	52.25	68.77	51.80	49.02	56.23
Cheek depth	47.91	43.94	56.03	44.83	40.13	50.44
Fleshy interorbital width	20.79	17.24	24.88	20.78	18.15	24.29
Lower jaw length	38.26	34.95	39.98	34.88	27.19	39.02
% in caudal peduncle length						
Caudal peduncle depth	70.70	60.22	77.21	71.11	62.16	75.79

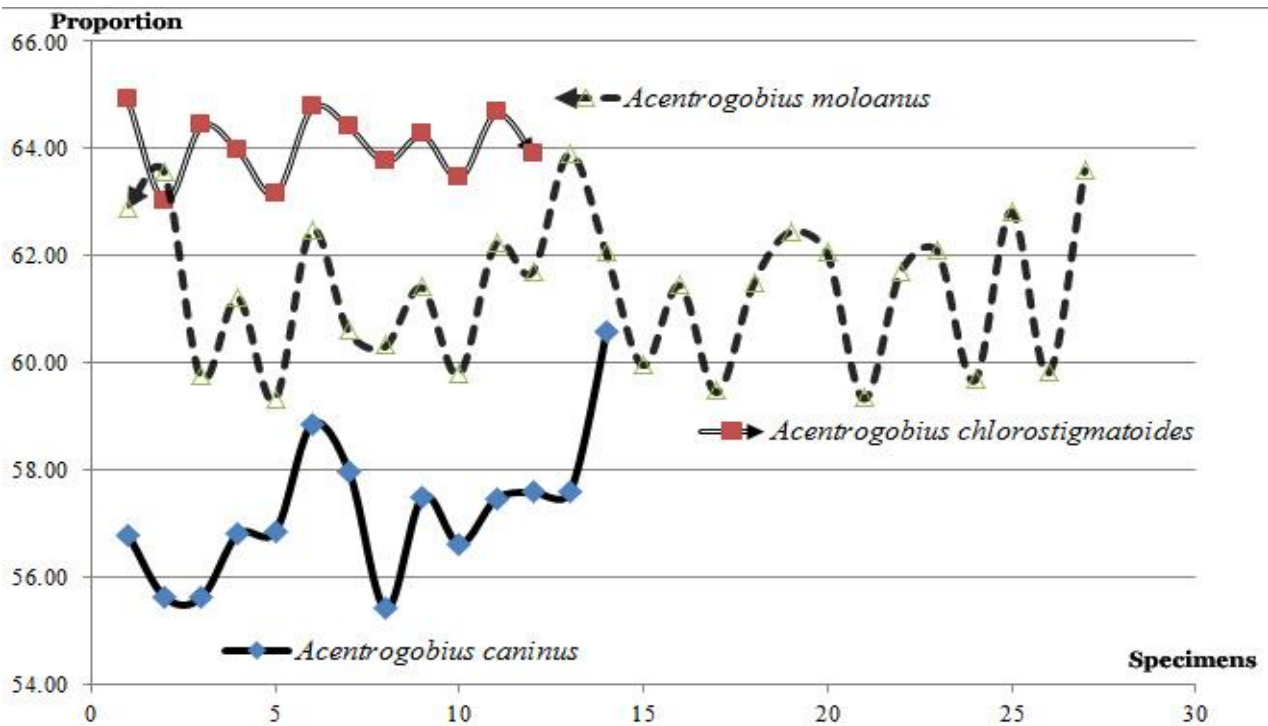


Fig.8. Relation between: Stander length and Snout to anal fin origin of *Acentrogobius chlorostigmatoides*; *Acentrogobius caninus*; *Acentrogobius moloanus*.

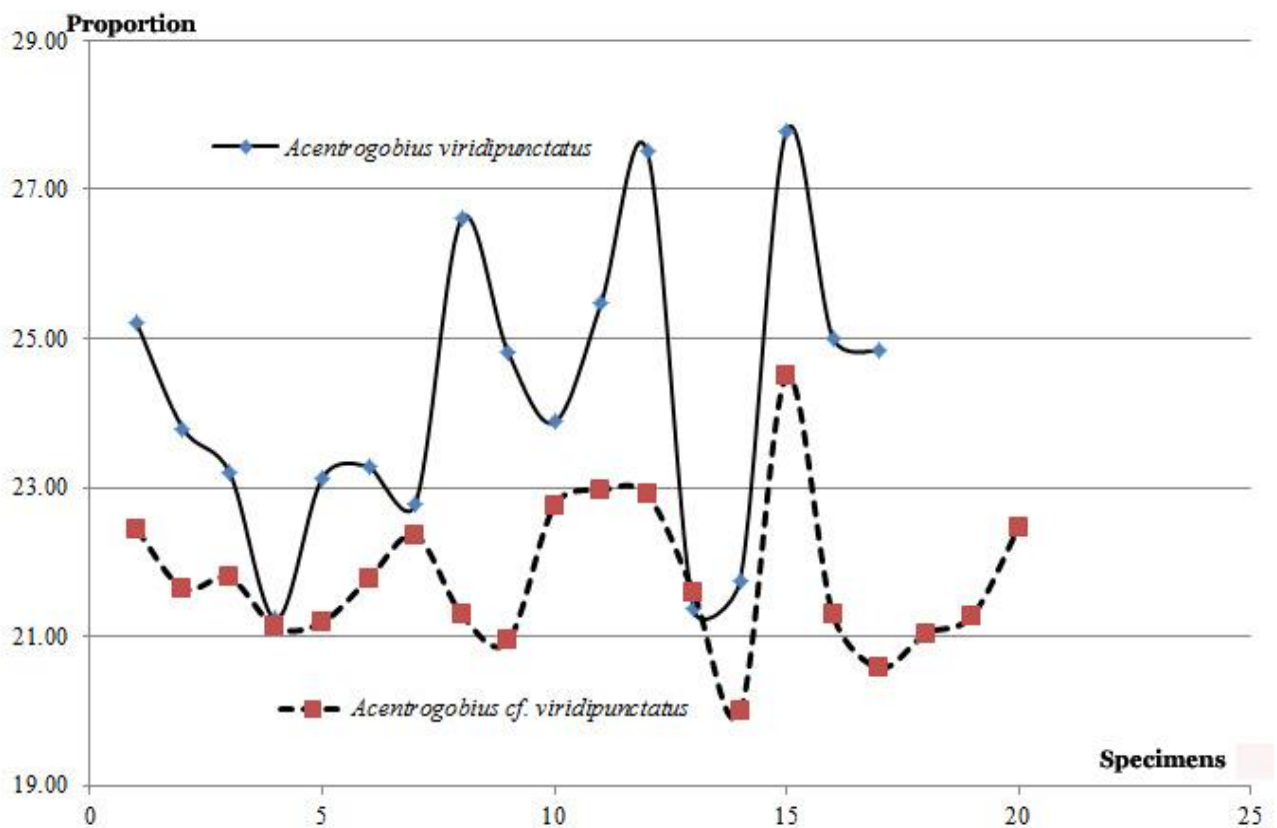


Fig.9. Relation between: Stander length and Body depth of first dorsal fin of *Acentrogobius viridipunctatus* and *Acentrogobius cf. viridipunctatus*.

Conclusion

Analysis and identification of 90 specimens of genus *Acentrogobius* Bleeker, 1874 collected from estuary and coastal of Nghe An province in North center region Vietnam. We have classified five species: *Acentrogobius caninus* (Valenciennes, 1837); *Acentrogobius chlosostigmatoides* (Bleeker, 1849); *Acentrogobius moloanus* (Herre, 1927); *Acentrogobius viridipunctatus* (Smith, 1831) and *Acentrogobius* cf. *viridipunctatus* (Smith, 1831). Which has species: *Acentrogobius moloanus* (Herre, 1927) and *Acentrogobius* cf. *viridipunctatus* (Smith, 1831) was first discovered in the study area and north center region Vietnam

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