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On the occurrence of the deep-snouted pipefish *Syngnathus typhle* Linnaeus, 1758 (Osteichthyes: Syngnathidae) in Tunisian waters (Central Mediterranean)

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Morphometrical measurements, counts and a short description of the deep-snouted pipefish Syngnathus typhle *Linnaeus, 1758 are presented in this paper from specimens caught in Tunisian waters. The occurrence of the species in the area is commented on and discussed.*

Key words: Osteichthyes, deep-snouted pipefish, *Syngnathus typhle*, Tunisia, Mediterranean Sea, morphometry

INTRODUCTION

According to BRADAÏ *et al.* (2004), five syngnathid species occur off the Tunisian coast: two sea-horses, *Hippocampus hippocampus* (Linnaeus, 1758) and *H. ramulosus* Leach, 1814; the great pipefish, *Syngnathus acus* Linneaus, 1758; the black striped pipefish, *S. abaster* Risso, 1826 and the deep-snouted pipefish *S. typhle* Linnaeus, 1758, of which only the latter is rarely caught in the area. SEURAT (1934) recorded *S. typhle* in estuarine waters running into the Gulf of Gabès. D'ANCONA (1934) examined four specimens deposited in the Ichthyological Collection of the Institut des Sciences et Technologies de la Mer of Salammbô, Tunisia, although their origin, however, remained unknown. BRADAÏ (2000) observed a single specimen captured by trawling in the Gulf of Gabès and BEN SOUISSI *et al.* (2005) recorded some specimens from sea-grass beds covering the bottom of the Tunis Southern Lagoon. Data on the reproductive biology and ecology of the species are scarce. The purpose of

this article is to give the first morphometric data of Tunisian specimens and to comment on the distribution of the species in Tunisian waters.

MATERIAL AND METHODS

The observed *S. typhle* were from two Tunisian sampling areas (Fig. 1). Ten specimens were collected in Tunis Southern Lagoon from sampling carried out from 2001 to 2006, at fishing sites located throughout the area (Fig. 1) (see BEN SOUISSI *et al*., 2005). Twenty specimens were collected from the Bahiret El Biban, a hyperhaline lagoon adjacent to the Gulf of Gabès, from 2002 to 2006 (Fig. 1). In both areas, samplings were carried out using spoons, of 2 mm mesh size, drags and SCUBA diving.

Between 2002 and 2005, landed fish caught by commercial gill-nets, of 22 mm mesh size, off the Tunisian coast were sampled three times per month.

All the collected specimens were preserved in 5% buffered formalin. Specimens from Tunis Southern Lagoon were deposited in the Ichthyological Collection of the Institut National Agronomique de Tunisie, catalogue number SYN-Syt-01 to 10 and those from the Bahiret El Biban in the Ichthyological Collection of the Faculté des Sciences de Tunis, catalogue number FST-SYN-Typhle-01 to 20.

In addition, 61 deep-snouted pipefish preserved in the Ichthyological Collection of the Muséum d'Histoire Naturelle de Paris (MNHN) were examined.

All measurements were carried out to the nearest millimetre, total mass and eviscerated mass to the nearest g, and counts taken on these specimens and their catalogue number are given in Tables 1 and 2.

Test for significance ($p < 0.05$) were performed using Student's t test and Snedecor's F test. Linear regression was performed following

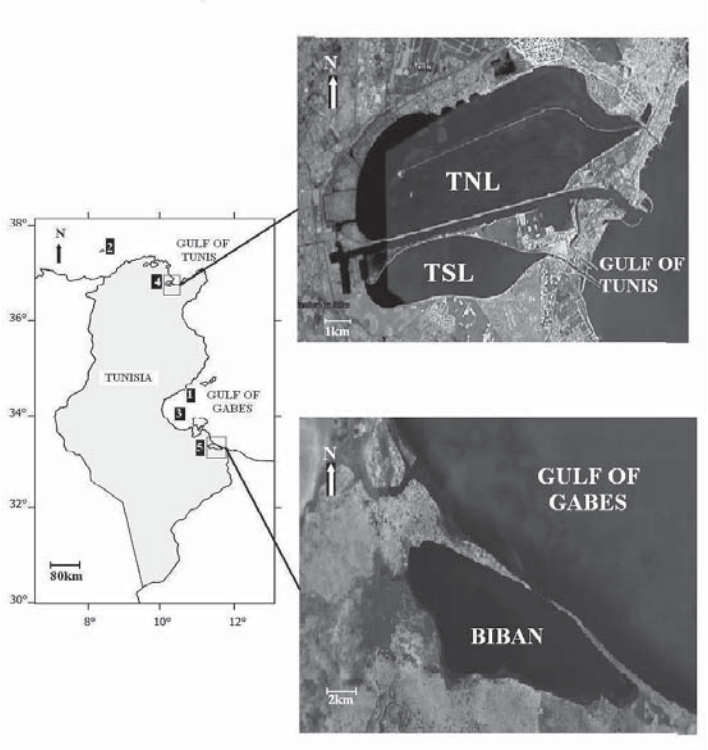

Fig. 1. Map of Tunisia showing the historical capture sites of Syngnathus typhle *in Tunisian waters: 1. Off Maharès (SEURAT, 1934). 2. Off Jalta Island (A-2770 collection of MNHN of Paris, see Table 2). 3. Gulf of Gabès (BRADAÏ, 2000). 4. Tunis Southern Lagoon (BEN SOUISSI et al., 2005). 5. Bahiret El Biban (this study)*

Table 1. Morphometrical measurements and counts carried out on 30 Tunisian Syngnathus typhle *(FST-SYN-Typhle-01 to FST-SYN-Typhle-20 and SYN-syt-01 to SYN-syt-10)*

	Measurements in millimeters															Counts						
References	TL	SL	HL	Inter orbital space	ED	Pr OL	Ps OL	SnL	DL	DB	TrD	Pr D	Pr AD	TaL	Total mass in grams	Dorsal fin soft rays	Pectoral fin soft rays	Anal fin soft rays	Caudal fin soft rays	Pre-dorsal ring	Post-dorsal ring	Under dorsal ring
FST-SYN-Typhle-01	153	147	30,4	1,9	3,1	18,2	9,3	17,6	18,9	17,2	5,2	76	76,5	74	1,6	32	16	4	10	18	30	8
FST-SYN-Typhle-02	175	168	34,9	2,6	3,3	22,2	10,1	19,4	19,2	18,1	6,7	88,7	88,9	85	2,55	36	16	4	11	18	31	8
FST-SYN-Typhle-03	174	167	34,8	2,6	3,3	22,1	10,1	19,4	19,1	18	6,7	88,6	88,8	85	2,54	36	16	4	11	18	31	8
FST-SYN-Typhle-04	154	148	30,5	1,9	3,1	18,3	9,4	17,7	18,9	17,1	5,2	76,1	76,6	74	1,62	32	16	4	10	18	30	8
FST-SYN-Typhle-05	155	149	30,6	1,9	3,1	18,4	9,4	17,7	19	17,3	5,2	76,2	76,7	75	1,64	32	16	4	10	18	30	8
FST-SYN-Typhle-06	173	166	34,7	2,6	3,3	22	10	19,3	19	17,9	6,7	88,5	88,7	84	2,53	36	16	4	11	18	31	8
FST-SYN-Typhle-07	172	165	34,6	2,5	3,3	21,9	9,9	19,2	19	17,8	6,6	88,3	88,5	84	2,52	36	16	4	11	18	31	8
FST-SYN-Typhle-08	156	150	30,7	1,9	3,2	18,5	9,5	17,7	19	17,4	5,2	76,3	76,8	76	1,65	32	16	4	10	18	30	8
FST-SYN-Typhle-09	158	151	30,9	1,9	3,3	18,7	9,6	17,8	19,2	17,6	5,3	76,5	77	77	1,67	32	16	4	10	18	30	8
FST-SYN-Typhle-10	176	168	34,9	2,6	3,3	22,3	10,2	19,5	19,3	18,2	6,7	88,8	89	86	2,56	36	16	4	11	18	31	8
FST-SYN-Typhle-11	153	147	30,4	1,9	3,1	18,2	9,3	17,6	18,9	17,2	5,2	76	76,5	74	1,6	32	16	4	10	18	30	8
FST-SYN-Typhle-12	175	168	34,9	2,6	3,3	22,2	10,1	19,4	19,2	18,1	6,7	88,7	88,9	85	2,55	36	16	4	11	18	31	8
FST-SYN-Typhle-13	174	167	34,8	2,6	3,3	22,1	10,1	19,4	19,1	18	6,7	88,6	88,8	85	2,54	36	16	4	11	18	31	8
FST-SYN-Typhle-14	154	148	30,5	1,9	3,1	18,3	9,4	17,7	18,9	17,1	5,2	76,1	76,6	74	1,62	32	16	4	10	18	30	8
FST-SYN-Typhle-15	155	149	30,6	1,9	3,1	18,4	9,4	17,7	19	17,3	5,2	76,2	76,7	75	1,64	32	16	4	10	18	30	8
FST-SYN-Typhle-16	173	166	34,7	2,6	3,3	22	10	19,3	19	17,9	6,7	88,5	88,7	84	2,53	36	16	4	11	18	31	8
FST-SYN-Typhle-17	172	165	34,6	2,5	3,3	21,9	9,9	19,2	19	17,8	6,6	88,3	88,5	84	2,52	36	16	4	11	18	31	8
FST-SYN-Typhle-18	156	150	30,7	1,9	3,2	18,5	9,5	17,7	19	17,4	5,2	76,3	76,8	76	1,65	32	16	4	10	18	30	8
FST-SYN-Typhle-19	158	151	30,9	1,9	3,3	18,7	9,6	17,8	19,2	17,6	5,3	76,5	77	77	1,67	32	16	4	10	18	30	8
FST-SYN-Typhle-20	176	168	34,9	2,6	3,3	22,3	10,2	19,5	19,3	18,2	6,7	88,8	89	86	2,56	36	16	4	11	18	31	8
SYN-Syt-01	241	230	42,7	3,1	4,1	24,7	16,7	22	28,2	26,3	4,3	116,8	117,7	95,7	2,66	37	16	3	10	18	30	8
SYN-Syt-02	283,1	272	47,3	2,4	4	25,5	17,8	28,8	34,2	32	5,9	135	133,1	99	4,33	36	16	3	10	18	30	8
SYN-Syt-03	229,9	220,8	38,5	1,9	3,5	23,5	15,5	23,4	27,3	26,1	5	109	109,7	91	3,52	36	16	3	10	18	30	8
SYN-Syt-04	174,3	167,4	29,2	1,5	2,6	22,3	10,1	17,8	21,8	19,8	3,8	83,2	82,9	85	2,66	36	16	3	10	18	30	8

Table 1. Cont'd

	Measurements in millimeters															Counts						
References	TL	SL	HL	Inter orbital space	ED	Pr OL	Ps OL	SnL	DL	DB	TrD	Pr D	Pr AD	TaL	Total mass in grams	Dorsal fin soft rays	Pectoral fin soft rays	Anal fin soft rays	Caudal fin soft rays	Pre-dorsal ring	Post-dorsal ring	Under dorsal ring
SYN-Syt-05	237	227,8	39,8	2,1	3,6	23,6	15,6	24,2	28,8	26,9	5,2	113,2	113	92	3,62	36	16	3	10	18	30	8
SYN-Syt-06	273,4	262,7	45,8	2,4	4,2	25,7	17,9	27,9	32,2	31	5,9	130,5	129,9	97	4,18	36	16	3	10	18	30	8
SYN-Syt-07	259	248,8	43,4	2,2	3,9	24,1	16	26,4	31,4	29,4	5,6	123,6	124	96	3,96	36	16	3	10	18	30	8
SYN-Syt-08	212,1	204,6	35,7	1,8	3,3	22	13,5	21,7	25,5	24,2	4,7	102	101,8	88	3,26	36	16	3	10	18	30	8
SYN-Syt-09	216,8	237,1	41,4	2,1	3,7	22,9	14	25,2	29,2	28	5,4	118	117,8	89	3,75	36	16	3	10	18	30	8
SYN-Syt-10	307	294	53,2	4,2	5,3	30,5	18,8	26,9	38	35,2	9,5	140,2	144,5	131,3	10,75	39	16	4	11	18	32	8

Table 2. Morphometrical measurements and counts carried out on 61 Syngnathus typhle *from MNHN of Paris*

		Measurements in millimeters															Counts						
	References	TL	SL	HL	Inter orbital space	ED	Pr OL	Ps OL	SnL	DL	DB	TrD	Pr D	Pr AD	TaL	Total mass in grams	Dorsal fin soft rays	Pectoral fin soft rays	Anal fin soft rays	Caudal fin soft rays	Pre-dorsal ring	Post-dorsal ring	Under dorsal ring
France	0-6070	304	292	52,5	3,8	5,2	34,9	14,2	30,5	32,8	29,5	8,7	135,5	134,5	140	10,96	38	16	4	11	18	32	8
		274	262	47	2,9	4,4	31,5	12,1	27,3	28,9	26,5	6,9	118,5	118	127	6,42	36	14	4	11	18	32	8
	0-6068	235	227	43	3,1	4,1	29,2	12,7	24,5	25,5	22,5	5,9	108	106	105	6,12	35	15	4	11	18	32	8
		203	194	36,9	3,2	3,9	21,5	9,5	22,3	25	22	5,8	92	92,5	92	2,64	32	15	4	11	18	32	8
	0-9263	333	294	53	3,2	4	34,9	16	32	29,7	26,5	9,4	139,3	142	136	10,92	35	18	4	12	18	32	8
		258	251	45,8	2,9	3,6	29,8	14,7	27	26	22,5	8,5	113,5	115	109	5,68	38	17	4	12	18	32	8
	0-5391	243	231	44,5	3	3,4	28	12,9	25	25	22,5	5,6	113,5	109	107	4,07	38	16	4	12	18	32	8
		277	263	50	3,4	5,1	32,2	25,5	28,4	27,5	25,3	8,5	128,4	126,1	122	7,14	38	15	4	11	18	32	8
	0-8958	228	220	45	2,6	3,7	28,5	14,5	26,4	24	21,5	6,1	110,4	109,5	94	3,65	39	14	4	10	18	32	8
	0-9260	204	199	34	2,5	4,1	23	10	20,5	23,2	20,9	4,3	94,5	92	84	3,26	34	14	4	10	18	32	8
	0-6059	175	169	33	2,8	3,7	21,7	9	19,6	20,1	19	6,1	82	83	74	2,95	35	15	4	11	18	31	8
	1898-1294	322	311	53,7	3,1	5,5	35	14,5	31,2	34,4	33	8	145,8	145	144	10,15	38	15	4	11	18	32	8
		256	247	44,5	2,9	3,9	27,2	13,5	24,3	26,5	25,3	7	118,5	115,5	109	5,59	37	14	4	10	18	32	8
	A-900	294	281	49,9	3	3,9	32,2	13,5	29	30,4	28	6,5	132	130,5	134	7,75	37	15	4	10	18	32	8
		305	294	53,5	3,1	4,5	34	16	30	31,5	27,8	8,2	138	137,5	135	8,65	34	15	4	10	18	32	8
	0-9263	303	291	52,5	3,4	3,8	34	14,6	30,5	30,4	28,5	8	139,5	138,5	132	8,7	34	16	4	11	18	32	8
		120	116	18,2	1,5	2,1	12	5,5	10,5	14	13,1	2,2	51,5	53	51	0,38	31	13	4	8	18	32	8
	1961-852	245	233	44	3,2	3,9	28	12,5	25	27	24,5	7,9	118	115	100	5,82	34	15	4	10	18	32	8
		173	166	31,5	3,4	3,1	25	8,5	19,5	19,5	17,5	5,9	80	82	82	1,84	30	14	4	10	18	31	8
	1898-1289	220	194	38	3,1	4,1	24	11	24	25	22,5	6,4	104	103	100	2,94	30	15	4	10	18	32	8
		242	235	39	3,2	4,1	27,5	12,5	29	29	26,5	5,5	109	108,5	109	6,5	33	16	4	11	18	32	8
		233	226	38,5	2,9	4	26	11,9	28	27	25	5,4	111	110,5	105	4,7	32	15	4	10	18	32	8
		237	230	35	2,8	3,8	24,5	11	29,5	28	25,5	5,1	107	108,5	102	4,99	33	15	4	11	18	32	8

Table 2. Cont'd

		Measurements in millimeters																Counts					
	References	TL	SL	HL	Inter orbital space	ED	Pr OL	Ps OL	SnL	DL	DB	TrD	Pr D	Pr AD	TaL	Total mass in grams	Dorsal fin soft rays	Pectoral fin soft rays	Anal fin soft rays	Caudal fin soft rays	Pre-dorsal ring	Post-dorsal ring	Under dorsal ring
Russia	A-1627	162	156	30,5	2,6	3	19	8	17,5	21,5	19,5	4,9	74,5	75,5	61	1,98	34	17	3	11	18	30	8
		153	147	28,2	2,5	2,9	17,6	8,1	20	20,5	18,4	4,5	72	74,5	60	1,07	34	16	3	10	18	30	8
		176	171	28,5	2,4	2,9	18	9,1	19,8	23	21,6	4,8	76,5	79	76	1,57	33	15	3	11	18	31	8
		202	196	35,4	2,5	3,3	22,5	10	15,9	22,5	20,4	4,9	87	91	87	2,54	32	14	4	10	18	31	8
Tunisia	A-2770	264	252	44,9	3,5	5,3	28,7	12,2	25	28	25,2	5,8	107	110	122	4,86	34	15	4	11	18	31	8
Algeria	0-9271	273	265	47,5	2,9	4,9	28,7	14,5	26,8	27	24	7	121	120,5	110	7,66	39	17	4	12	18	31	8
		236	231	41,7	2,8	4,2	27	12	24	24	22,5	9	109	108,5	101	5,27	37	15	4	11	18	31	8
	0-9275	303	229	50,5	3,3	5,6	33,4	18,4	29,6	34,5	31,9	7	134	136	137	9,68	39	16	4	12	18	32	8
	0-6069	337	331	50	3,8	5	36,6	13,3	29,2	34	32,8	7,9	141,5	143,5	142	11,23	38	16	4	12	18	32	8
		290	281	48,5	3	4,8	30,9	14,5	27,2	31	29	7,3	128,5	130	127	6,41	37	15	4	11	18	32	8
Mediterranean Sea	0-6065	288	281	48,3	3,5	5,2	31	15	27,5	34,5	32	7,1	128,5	130	127	7,64	35	16	4	11	18	32	8
		207	201	34,9	2,9	3,4	21,3	9,4	18	26,3	23	6,5	91	91,5	95	3,03	33	15	4	10	18	31	8
	0-6064	150	147	30,9	2,7	3,2	20,9	8,1	20,8	23	20,9	4,4	75,5	71	62	2,27	33	14	3	10	18	30	8
		193	185	33,7	2,5	3,5	22,3	10	19,7	20,2	18,5	4,5	84,5	88	84	2,79	34	14	4	11	18	31	8
	0-9276	292	282	49	3,4	3,9	30,3	15,3	26,9	30,5	27,5	8	127,3	126,9	132	10,13	36	14	4	12	18	32	8
	0-9274	270	259	47,5	2,9	3,5	31,5	15,5	28,4	28,5	26,5	8	118,5	121,5	121	7,14	36	14	4	11	18	32	8
		226	219	41,5	3	4,5	26,4	11	23,8	24	22,5	5,9	106,5	107	95	4,27	30	16	4	10	18	31	8
	0-9268	212	205	36,5	2,4	3,6	24,5	9,3	22	21	19	6,3	103,5	104	91	2,9	31	15	4	10	18	31	8
		149	143	30,8	2,2	3,4	20,7	7,7	19	27,2	25,3	3,1	74	72	59	0,77	32	13	4	9	18	30	8
Ukraine	0-6058	291	280	53,7	3,3	5,1	34	15,9	31	31	28	7,7	141	139	122	7,99	33	15	4	12	18	32	8
		193	186	37,3	2,9	3,4	24	10,5	21	19,2	17,5	4,6	93,7	92,5	88	1,88	34	13	4	10	18	31	8
Greece	A-2789	104	100	19,9	2	1,9	12,9	5,5	11,4	10,5	9,9	2,4	49,8	54	43	0,4	37	14	3	8	18	30	8
		198	190	37	2,6	4,3	24	11,5	21,2	21,1	19,3	4,8	95,6	95	85	2,36	37	14	4	10	18	31	8
	0-9278	155	149	30,3	2,2	3,2	19,5	7,5	17,7	19	16,3	4	74,7	76	61	0,87	34	13	3	9	18	30	8
	1975-477	228	220	44	3,3	4,3	29	13,3	26	29	25,5	6,9	125	123	77	5,4	31	15	4	10	18	31	8
Italy	0-6066	215	208	34,5	3	3,1	20,5	10	20,5	24	21,5	5,5	88,5	91,5	96	3,91	39	18	3	13	18	31	8
	0-9273	312	302	50,5	3,2	4,9	32,5	15	29	33	31,5	7,5	132	136,5	144	10,62	38	15	4	11	18	32	8
		313	302	50	3,4	4,2	32,1	14,1	29,5	34	32	7,5	133	136	145	9,55	37	14	3	11	18	32	8
	0-6060	181	173	35	2,3	3,9	24,4	7,5	21,5	19	17	3,9	79,5	81	71	1,57	32	14	4	9	18	31	8
	0-9264	225	198	37,7	3	4	23,5	10,2	21	26	23,9	6,5	103	182,5	102	4,76	31	16	3	11	18	31	8
		185	180	33,6	3	3,6	21	10,5	18,5	19,5	17,5	5,1	87,7	87	79	2,75	29	15	4	9	18	31	8
	0-9272	296	288	48,5	3,7	5	30,3	18,5	27,5	35	31,5	7,5	135,7	136,6	126	9,61	39	16	3	12	18	32	8
		263	255	47	3,1	4,5	30,5	18,6	21,6	26,7	23,5	6,2	119	118,5	118	5,77	38	17	4	12	18	32	8

Table 2. Cont'd

References		Measurements in millimeters															Counts							
		TL	SL	HL	Inter orbital space	ED	Pr OL	Ps OL	SnL	DL	DB	TrD	Pr D	Pr AD	TaL	Total mass in grams	Dorsal fin soft rays	Pectoral fin soft rays	Anal fin soft rays	Caudal fin soft rays	Pre-dorsal ring	Post-dorsal ring	Under dorsal ring
Romania	1925-55-59	191	184	35,9	2,6	3,5	22,7	10,9	20,5	24,5	23,4	6,5	89	90,5	77	4,53	39	17	4	12	18	31	8
		242	234	42,6	3	4	26,9	13,1	25	29	28,9	8,6	116	114,2	100	7,37	38	16	4	11	18	32	8
		192	185	35,5	2,5	3,1	23	11	19,5	22,5	20,6	4,9	88	89,7	77	3,33	37	19	4	12	18	31	8
		196	187	37	2,7	3,5	24,5	12,7	19	23	21,7	4,9	90	92,5	79	3,33	38	18	4	12	18	31	8
		130	124	23,9	2	2,3	16	16,5	14,5	18,5	16	2,6	60,5	63,4	54	0,5	37	18	3	11	18	30	8

log transformation of data. Correlations were assessed by least-squares regression. Curves were compared by ANCOVA.

RESULTS

Description of the Tunisian specimens

Body elongate, rounded; head rather prominent (Fig. 2), head-length 2.3-4.8 in pre-anal length, 4.8-6.8 in total length; snout compressed rather strait and with a keel on upper surface, snout-length 1.2-2.2 in head-length; eye rounded and minute 8.3-13.8 in head-length; pre-orbitary 1.3-1.7 in head-length; post-orbitary-length 1.4-4.7 in head-length; pre-dorsal length 1.8-2.5 in total-length; dorsal fin slender with 29-39 soft rays on 8 rings; dorsal-base 5.8-12.6 in total-length; 18 pre-dorsal rings; 30-32 post-dorsal rings; 56-58 total rings; pectoral with 13-19 soft rays; anal with 3-4 soft rays; caudal with 8-13 soft rays.

Colour greenish to olive-green, snout with dark lines and spots. Belly is whitish or argentous.

There were positive relationships for total length *versus* total mass (TM) and total length *versus* eviscerated mass (EVM). These relations did not significantly differ from each other. The relationships were: Log TM= 1.836 Log TL - 8.671; r= 0.91; n= 30 and Log EVM= 2.133 Log TL -10.774; r= 0.92; n= 30.

Comparison between the Tunisian specimens and specimens from MNHN

Specimens from MNHN were from nine different origins, and were not statistically supported by sufficient data to be compared with the Tunisian specimens, so they were included in the same sample. Some relationships between Tunisian samples and MNHN samples, such as HL/PrAD; HL/TL; SnL/HL; PrAD/TL; PrD/TL; PrOL/HL; PsOL/HL; DL/DB; DB/TL; ED/HL

Fig. 2. A: Syngnatus typhle *(SYN-Syt-10) caught in Tunis Southern Lagoon; B: Detail of head (SYN-Syt-10)*

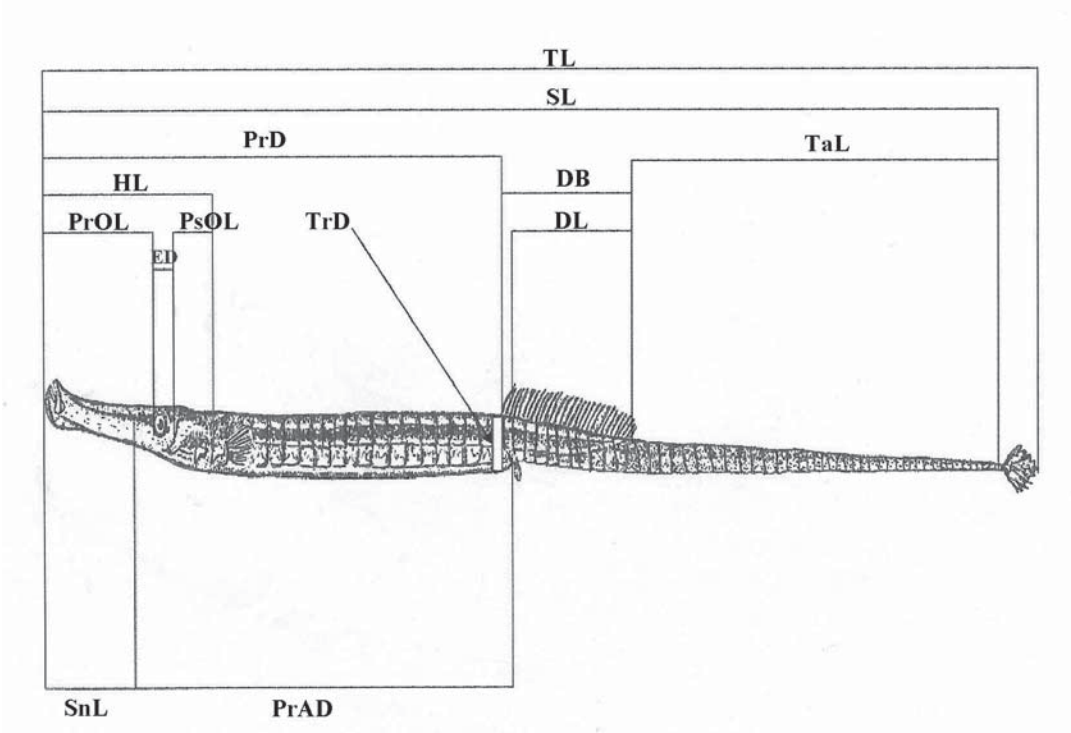

Fig. 3. Measurements carried out on Syngnathus typhle *following LOURIE et al. (1999) for syngnathids. Specimen redrawn from TORTONESE (1970). DB: dorsal base. DL: dorsal length. ED: eye diameter. HL: head length. Pr AD: pre-anal distance. Pr D: pre-dorsal distance. Pr OL: pre-orbitary length. Ps OL: post-orbitary length. SL: standard length. SnL: snout length. TaL: tail length. TL: total length. TrD: trunk depth*

and also all of the meristic counts, were compared by LOURIE *et al*., 1999 (Fig. 3).

HL/TL, PrAD/TL, PrD/TL, PrOL/HL, PsOL/HL, DL/DB, DB/TL, pectoral fin soft rays, caudal fin soft rays and post-dorsal rings were significantly different between Tunisian and MNHN samples.

DISCUSSION

The description, morphometric measurements and meristic counts are in agreement with TORTONESE (1970), BAUCHOT & PRAS (1980), DAWSON (1986) and RIEDL (1991).

According to DAWSON (1986), the deep-snouted pipefish inhabits coasts and estuaries, usually from 4-20 m. It is relatively common amongst seaweed and *Zoostera*. The species probably found favorable environmental conditions in Tunis Southern Lagoon and the Bahiret El Biban which may explain its occurrence in the area as shown by positive relationships of total length *versus* total mass and total length *versus* eviscerated mass. Similar patterns were reported for other fish species living in the same areas (see CAPAPÉ *et al*., 2004; MEJRI *et al*., 2004; BEN SOUISSI *et al*., 2004; 2005).

Specimens from Tunisian waters and those from other areas exhibited significant morphometric differences. While they probably belonged to different populations, this hypothesis needs to be confirmed.

DIEUZEIDE *et al.* (1954) reported *S. typhle* off the Algerian coast while, in contrast the species was not recorded off Libya (AL HASSAN & EL SILINI, 1999) and off the Mediterranean coast of Egypt (EL SAYED, 1994). However, GOLANI (2005) reported *S. typhle* off the Mediterranean coast of Israel.

DULČIĆ *et al.* (2005), following MOROVIĆ (1973), noted that "the rarity of certain fish species could be evaluated from records in the scientific literature". The same author has pointed that "if the species is recorded less than

five times, it should be treated as very rare". According to our opinion, this is the case for *S. typhle* from the Tunisian coast to the best of our knowledge, suggesting therefore that it could be considered as rare in the area. The rare finding of deep-snouted fish may be due to fact that it is difficult to catch by commercial fishing gear and it does not present economic value for fishermen. The presumption is that *S. typhle* has not been the subject of previous scientific investigations unlike other syngnathids and probably escaped observation. Moreover, misidentification with other closely related species could not be excluded.

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O pojavi ribe šila tupokljunog *Syngnathus typhle* Linnaeus, 1758 (Osteichthyes: Syngnathidae) u tuniskim vodama (srednji Mediteran)

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SAŽETAK

Morfološka mjerenja, rezultati, kratki opis ribe šila tupokljunog *Syngnathus typhle* Linnaeus, 1758 su dati u ovom radu prema primjercima uhvaćenim u tuniskim vodama. Također je raspravljana učestalost ove vrste na istraživanom području.

Ključne riječi: Osteichthyes, šilo tupokljuno, *Syngnathus typhle*, Tunis, Mediteran, morfometrija