

*Cyrtopodion (Mediodactylus)*  
*kotschy* (STEINDACHNER, 1870)  
from Çivril, Denizli  
(western Turkey)

The East Mediterranean species *Cyrtopodion (Mediodactylus) kotschy* (STEINDACHNER, 1870), is distributed on the Aegean Islands, in Greece, Albania, Macedonia, Bulgaria, Georgia, Iran, Syria, Lebanon and Israel, on Cyprus, in southeastern Italy, south Crimea and Turkey (BEUTLER 1981; KASAPIDIS et al. 2005; ANANJEVA et al. 2006). *Cyrtodactylus kotschy* is represented by nine nominal subspecies in Turkey (BARAN & ATATÜR 1998) and 17 on the Aegean Islands and the mainland of Greece (VALAKOS et al. 2008). All the specimens that were collected from western, southern and central Anatolia by BODENHEIMER (1944) were first included in the subspecies *C. k. steindachneri* (ŠTEPÁNEK, 1937). Later, the specimens found in north Anatolia (Artvin and Ardanoç) by TERENTJEV & CHERNOV (1965) were regarded as *C. k. colchicus* (NILOLSKIJ, 1902). MERTENS (1952) stated that some five subspecies - *buresschi* (ŠTEPÁNEK, 1937), *syriacus* (ŠTEPÁNEK, 1937), *orientalis* (ŠTEPÁNEK, 1937) and *lycaonicus* (MERTENS, 1952) - are found in Anatolia, thereby describing the new subspecies, *lycaonicus* from Konya. BARAN & GRUBER (1982), who studied the *Cyrtopodion* populations in Turkey, considered *steindachneri* (ŠTEPÁNEK, 1937) and *lycaonicus* synonyms of *danilewskii* (STRAUCH, 1887) and reported that the subspecies concerned was found in the Thracian region, Istanbul, Balıkesir, Ankara, Afyon and Konya. Furthermore, BARAN & GRUBER (1982) attributed a juvenile specimen from Denizli to the subspecies *C. k. beutleri* (BARAN & GRUBER, 1981), distributed on the islands of the north-west Anatolian coast. In the same study, a new species and two new subspecies (*C. k. ponticus* and *C. k. ciliciensis*) were identified in south and north Anatolia. KUMLUTAŞ et al. (2004) included the specimens of the western Taurus in the subspecies *C. k. ciliciensis* and recorded new localities. According to FRANZEN et al. (2008), *C. kotschy* is represented by three subspecies in southwestern Turkey, where *C. k. beutleri* is distributed on

the coasts of the Aegean Sea and its islands, *C. k. ciliciensis* along the southern part of Manavgat (province of Antalya) and *C. k. danilewskii* in the interior of this region.

The specimens collected from Istanbul (Turkey) by MERTENS (1952) were first determined as *C. k. buresschi*. However, BEUTLER & GRUBER (1977) included all populations inhabiting Thrace in the subspecies *C. k. danilewskii*. On the other hand, BARAN & GRUBER (1982) stressed that *C. k. danilewskii*, *C. k. lycaonicus* and *C. k. steindachneri* did not differ in taxonomic characters and emphasized that *C. k. lycaonicus* and *C. k. steindachneri* should be considered synonyms of *C. k. danilewskii*. A juvenile specimen from Denizli was included in the subspecies *C. k. beutleri* by BARAN & GRUBER (1982).

ŠČERBAK & GOLUBEV (1996) partitioned the palearctic geckos into several genera and subgenera, placing *Cyrtopodion kotschy* into the subgenus *Mediodactylus* within the genus *Tenuidactylus* ŠČERBAK & GOLUBEV, 1984. More recently, the phylogeography of the species *C. kotschy* was examined by KASAPIDIS et al. (2005). Although KASAPIDIS et al. (2005) stated that the phylogenetic branch of Anatolia (Akşehir, Silifke and Adana) resembled the *danilewskii* group of the islands of Kastelorizo, Dodecanese and Cyprus, the authors stressed that a revision of the subspecies of *C. kotschy* was needed.

In this study, a total of 22 (10 ♂♂, 11 ♀♀, 1 juvenile) *Cyrtopodion kotschy* specimens from Çivril (Denizli) were collected from the stone walls of the buildings during fieldwork carried out at the evening hours. ZDEU-ÇOMÜ 109/2010. 1-22, 10 ♂♂, 11 ♀♀, 1 juv., Çivril, Denizli. 10.08.2010, leg. AFSAR & AFSAR. Coordinates 38°17'37"N, 29°44'15"E. The specimens were anesthetized with ether; 96% ethanol was injected into their body cavities; and they were placed into jars containing 70% ethanol (SİKİ & TOSUNOĞLU 2002; YILDIZ et al. 2007). The following meristic characters were counted: supralabialia, internasalia, infralabialia, precloacal pores, postcloacal tubercles, granules between the longitudinal rows of dorsal tubercles, subdigital lamellae underneath the 4th toe and longitudinal scale rows at midbody. The shape (whether



Fig. 1: Dorsal aspect of a male *Cyrtopodion kotschy* specimen from Çivril (Denizli, Turkey).



Fig. 2: Ventral aspect of a male *Cyrtopodion kotschy* specimen from Çivril (Denizli, Turkey).

keeled or flat) of the small scales on both head, dorsum and underside of tibia, as well as the arrangement of the scales on the ventral side of the tail were examined according to the methods in BARAN & GRUBER (1982). Calipers (accuracy 0.01 mm) were used when performing the body measurements Tail length and Snout-vent length.

Sexual dimorphism in terms of the pholidosis characteristics was not observed in the specimens (Kolmogorov-Smirnov test:  $p > 0.05$ ). Thus, the counts and measurements were taken from the combined male and female sample, except for the number of precloacal pores found in males only. In all specimens, the first pair of infra-maxillary shields touched each other. The number of longitudinal rows of dorsal tubercles was 10, and there were two to three granules between the tubercles. The number of postcloacal tubercles was one. The lower surface of the unregenerated tail was covered by one row of enlarged scales in six specimens. However, in four individuals, some few paired scales were arranged along the lower surface of the tail in between unpaired enlarged scales. In one specimen, many paired scales were present among a few enlarged unpaired subcaudals. The values of the pholidosis characteristics and body measurements are presented in Table 1.

The dorsal side of adult specimens was colored in shades of light or dark gray. The dark gray transverse stripes were found on all specimens (Fig. 1). In all specimens, the ventral side of the head was dirty white, while the body and the tail were dirty yellow or white (Fig. 2).

In their pholidosis, our specimens from Çivril (Denizli) differed from *C. k. beutleri* as detailed in BARAN & GRUBER (1981, 1982). According to BARAN & GRUBER (1982), the number of postcloacal tubercles was two in three specimens and one in one specimen of their *C. k. beutleri* materials from Denizli and Aydın. In addition, the number of precloacal pores was four. In all specimens caught from Çivril, the number of postcloacal tubercles was counted as one. Moreover, the number of precloacal pores was found to be higher than in the subspecies *C. k. beutleri* (6-10, mean 7.80). This value was given as 4-9 (5.41) in the *C. k. ciliciensis* specimens col-

Table 1: Descriptive statistics of pholidosis counts and body measurements of 21 *Cyrtopodion kotschyi* specimens from Çivril (Denizli, Turkey). *n* - number of specimens, 1Qu - First quartile, 3Qu - third quartile, SD - standard deviation, SE - standard error.

	<i>n</i>	Minimum	Maximum	Median / Mean	SE / SD	1Qu / 3Qu
Subdigital lamellae underneath 4th toe	21	18	25	21 / 21.57	0.43 / 1.98	20 / 22.5
Precloacal pores	10	6	10	8 / 7.80	0.42 / 1.31	6.75 / 9
Internasalia	21	3	5	3 / 3.57	0.18 / 0.81	3 / 4
Supralabialia	21	7	9	8 / 8.00	0.20 / 0.89	7 / 9
Infralabialia	21	7	10	8 / 7.67	0.16 / 0.73	7 / 8
Longitudinal scale rows (midbody)	21	19	26	23 / 21.90	0.45 / 2.07	19.5 / 23
Snout-vent length [mm]	20	30.66	48.54	- / 40.53	0.84 / 3.88	- / -
Tail length [mm]	11	37.62	50.09	- / 45.75	1.05 / 3.48	- / -

lected from the western Taurus Mountains by KUMLUTAŞ et al. (2004). In contrast to the subspecies *C. k. ciliciensis* (see BARAN & GRUBER 1982), the scales under the tibia were not keeled in our specimens. The number of the subdigital lamellae of the 4th toe was between 18 and 25 (mean 21.57) in the specimens from Çivril. This value was higher than the values provided for *C. k. beutleri* (12-23) by BARAN & GRUBER (1982) and *C. k. ciliciensis* (15-23, mean 17.99) by KUMLUTAŞ et al. (2004).

In conclusion, the pholidosis values of the specimens of Çivril (Denizli) were in agreement with the values given for the subspecies *C. k. danilewskii* in terms of the following criteria: numbers of ventralia, precloacal pores, postcloacal tubercles, and subdigital lamellae under the 4th toe; the presence of unkeeled scales on the ventral side of the tibia, and the arrangement of the scales on the ventral side of the tail. In the light of the data obtained in this study, it was concluded that the populations of Denizli and Aydın should be re-evaluated in more detail.

The specimens collected from Çivril (Denizli) can be included in the subspecies *C. kotschyi danilewskii*. Furthermore, the known distribution range of *C. k. danilewskii* was extended as far as Denizli in the south besides the Thracian region, Istanbul, Balıkesir, Ankara, Konya and Afyon as mentioned by BARAN & GRUBER (1982).

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AUTHORS: Murat AFSAR, (corresponding author) Celal Bayar University, Faculty of Sciences & Arts, Department of Biology, Muradiye Campus, 45030 Manisa, Turkey < murat.afsar@bayar.edu.tr >; Dinçer AYAZ, Ege University, Faculty of Science, Department of Biology, 35100 Bornova, İzmir, Turkey; Birgül AFSAR, Celal Bayar University, Faculty of Sciences & Arts, Department of Biology, Muradiye Campus, 45030 Manisa, Turkey; Kerim ÇİÇEK, Ege University, Faculty of Science, Department of Biology, 35100 Bornova, İzmir; Cemal Varol TOK, Çanakkale Onsekiz Mart University, Faculty of Sciences & Arts, Department of Biology, Terzioğlu Campus, 17020 Çanakkale, Turkey.