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# Intra- and-inter-specific geographic variation in the Iranian Scincid lizards of the genus *Trachylepis* Fitzinger 1843 (Sauria: Scincidae)

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The genus *Trachylepis* Fitzinger, 1843 encompasses two-three species in Iran: *Trachylepis vittata* (Olivier, 1804) distributed in western Iran, west of the Zagros Mountains; *T. septemtaeniata* (Reuss, 1834) in southern regions of the Zagros Mountains and *T. aurata transcaucasica* Chernov, 1926 from northern to central parts of the Zagros Mountains. For study of geographic variation in the latter two taxa, 58 specimens of these two taxa *(T. aurata transcaucasica* and *T. septemtaeniata*) were collected from five distinct localities in the Zagros Mountains and adjacent regions. Post-ANOVA pair- wise analysis (Tukey test) and two multivariate analyses including Principal Component Analysis (PCA) and Discriminant Function Analysis (DFA) based on 22 metric and five meristic characters across all the studied groups verified significant intra- and-interspecific differences in some important characters. Especially, results of the multivariate analyses suggest that most of the studied populations have acquired certain degree of morphological divergence. For instance, 88.9% of west Azerbaijan, 95% of Kurdistan, 90% of Kermanshah, 80% of Lorestan, and 77.8% of Khuzestan populations were assigned to their correct *a priori* group by classification resulted in discriminant analysis. The specific status of *T. septemtaeniata* is questioned and it is concluded that this species being just a subspecies of *T. aurata.*

**Key words:** Reptilia, Squamata, Geographic variation, Taxonomy, Biogeography, *Tracylepis*, Zagros, Morphology, Multivariate analyses, Iranian Platea

## INTRODUCTION

The family Scincidae currently contains more than 1300 species grouped in over 85 genera (Bauer, 1992). About 100 species of these are grouped in the lygosomine genus *Mabuya* (sensu Greer, 1977), which is the only lizard genus with a circumtropical distribution. The distribution of the species *Trachylepis auratus* is generally given as: Greece (Aegean Islands, Samos), Turkey (Burdur, Alanya, Mardin, Urfa) [Clark & Clark 1973], European Soviet Union (Caucasus), Pakistan?, Syria [Moravec 1998], Iraq, Iran, Northeast Saudi Arabia, Bahrain, North Oman coastal Ethiopia, Eritrea, South Armenia, South Azerbaijan, S Turkmenistan, East Uzbekistan (data from the EMBL Reptile Database, July 2005). Traditionally in the literature (e.g., Anderson, 1999) *"transcaucasica*" is a subspecies of *Mabuya aurata* complex. But recently the subspecies *"septemtaeniata"* was elevated to the specific level with changing its generic name into *Euprepis septemtaeniata* (Mausfeld&Schmitz, 2003). In the same year Bauer (2003) changed *Euprepis* into *Trachylepis*. These changes had also occurred to subspecies of *transcaucasica* as *Euprepis aurata transcaucasica* at first (Mausfeld&Schmitz, 2003) and then

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*Trachylepis aurata transcaucasica* (Bauer, 2003). According to Mausfeld & Schmitz (2003), the Iranian species of *Mabuya* and totally Middle East species of this old genus come under Afro-Malagasy clade. *Mabuya* (sensu stricto) is limited to South American branch. Accordingly, Mausfeld & Schmitz (2003) suggested a more satisfactory solution to the systematic of this group by showing that *"septemtaeniata*" and *"transcaucasica*" are more related to *Euprepis* branch in Afro-Malagasy clade. Further, they suggested that *"transcaucasica"* should be treated as a subspecies of *Euprepis* with "*septemtaeniata*" as a good species.

As the taxonomic nomenclature intends to reflect genealogical units, the genus *Mabuya* (sensu lato) revised by Mausfeld et.al (2002) to show the independent origins of the four groups. Given the probable paraphyly of the genus *Mabuya* (sensu lato) and the results published by Mausfeld et.al (2002, 2003), confirms the division of *Mabuya* (s.l) into four genera. In the case of *Trachylepis aurata*, the taxon "*septemtaeniata*" Reuss 1834 is considered as a subspecies. Therefore, we have *Trachylepis aurata aurata* and *T. aurata septemtaeniata*. Another taxon "*transcaucasica*" was described by Chernov in 1926, and this form has either been regarded as another subspecies of *aurata* (*T. aurata transcaucasica*) or as a synonym of the nominate subspecies *T.a. aurata*. After the taxon *"septemtaeniata"* was elevated to the species level (*T. septemtaeniata*) it now remains to clarify the status of "*transcaucasica"*. If we assume "*transcaucasica*" is a valid taxon and should not be considered as a subspecies of "*aurata"*, then we are dealing with two taxa at the subspecific level: the nominate form *T. aurata aurata* and the eastern form *T. aurata transcaucasica*. Then the distribution areas are simple to define, since the nominate form "*aurata aurata"* occurs in all areas with the exception of the areas we have identified real "*aurata transcaucasica"*. However, if, we assume (e.g. compare EBML) that " *transcaucasica*" is just a synonym of "*aurata*", then we can refer back to the simple binomen and call the species as *T. aurata*, since there would be no more intraspecific divisions formally recognized.

## MATERIALS AND METHODS

Lizard specimens examined in this study are listed in Appendix. These specimens were collected during field work in western regions of the Iranian Plateau in 2003-2005 (Figure1). Characters used in this study are presented in Table (1). 58 preserved specimens (36 males and 22 females) were examined. Adult specimens were also examined for the presence or absence of keels on dorsal scales at midbody as well as for the color pattern. Comparison of metric and meristic characters, using independent sample T-test, ANOVA as well as two multivariate procedures (Principal Component Analysis and Discriminant Function Analysis). The studied populations were as follows: West Azarbaijan (4 Males and 5 females), Kerdistan (16 Males and 4 females), Kermanshah (4 Males and 6 females), Lorestan (7 males and 3 females), and Khuzestan (5 Males and 4 females) as representatives of the *Trachylepis* complex. The above-mentioned analyses were carried out with three main goals, firstly to determine the presence of sexual dimorphism in these populations, secondly to investigate geographic variation among four populations of *Trachylepis aurata transcaucasica*, from West Azarbaijan, Kurdistan, Kermanshah and Lorestan, and thirdly to determine the degree of differences between the above-mentioned populations of *T. a. transcaucasia* on the one hand and *T. septemtaeniata* from Khuzestan Province on the other (Geographic distribution and sampling localities are shown in Figure 1).

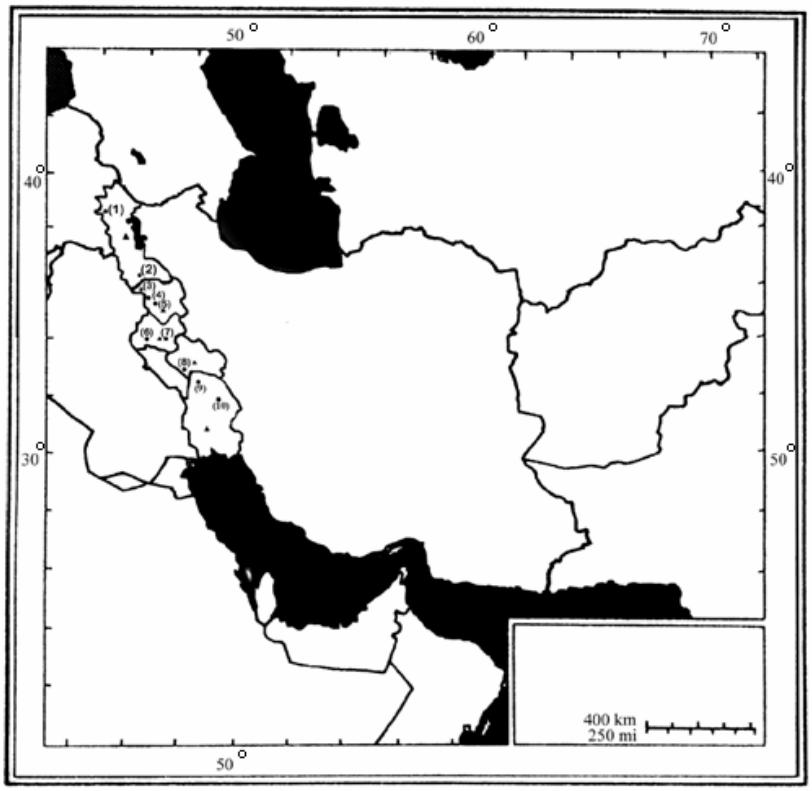


**FIG.1.** − Map of sampling localities for specimens used in this study: (1) Ghotur; 38˚,35́ N – 45˚,02́ E (2) Bukan; 36˚,32́ N – 46˚,10́ E (3) Baneh; 35˚,58́ N – 45˚,55́ E (4) Marivan; 35˚,22́ N – 46˚,14́ E (5) Sarvabad; 35˚,17́ N – 46˚,21́ E (6) Esalm Abad - e- Gharb; 34˚,19́ N – 47˚,07́ E (7) Kermanshah; 34˚,55́ N – 46˚,27́ E (8) Poldokhtar; 33˚,08́ N – 47,43 E (9) Dezful and Andimeshk; 32˚,12⁸ N- 48˚, 27⁸ (10) Masjed solaiman and haft gel; 31˚,58́ N – 49˚,17́ E. ▲: Center of Provinces, ●: Sampling localities

## RESULTS

*-Morphometric analysis*

Independent sample T-test and ANOVA test were carried out in male and female specimens of four populations of *Trachylepis aurata transcaucasica* and *Trachylepis septemtaeniata* to investigate sexual dimorphism in these taxa. In these analyses none of the characters exhibited significant ($P<0.05$), sexual differences among male and female populations of *T. aurata transcaucasica and T.septemtaeniata.*

On the other hand, results from post-ANOVA pairwise analysis (Tukey-test) across all the groups suggested statistically significant differences among groups (Tables 2 and 3). Accordingly, the Kurdistan population was morphologically most divergent from the Khuzestan population, and between different populations of *T.a.transcaucasica*, the West Azerbaijan and Kermanshah populations were morphologically most similar to one another, and the Kurdistan-Kermanshah populations were morphologically most divergent from one another (Table 2).

**TABLE 1.** The quantitative (metric and meristic) measured characters.

| Characters | Definition |
|---|---|
| ST | SVL/TL |
| LHWH | LH/WH |
| WHHH | WH/HH |
| LFLH | LFO/LHI |
| SVL | Length of snout to vent (from tip of snout to anterior edge of cloaca) |
| LT | Length of tail (from posterior edge of cloaca to tip of tail) |
| LH | Length oh head ( from tip of snout to posterior edge of tympanum) |
| WH | Wide of head (at the widest point of head) |
| HH | Height of head |
| LFO | Length of forelimb |
| LHI | Length of hind limb |
| SDLT | Subdigital lamellae under the forth toe( total number of lamellae under the right forth toe) |
| SDLF | Subdigital lamellae under the forth finger. |
| LE | Length of eye ( from anterior corner to posterior corner of eye). |
| NED | Nostril-eye distance ( from anterior corner of eye to posterior edge of nostril) |
| EED | Eye- ear distance ( from the posterior corner of eye to anterior edge of tympanum) |
| NSL | Number of supralabials |
| NIL | Number of infralabials |
| IOR | Interorbit distance (between anterior or posterior corner of orbits) |
| NL | Neck length ( from the posterior edge of tympanum to anterior edge of sholder) |
| ORD | Orbit diameter |
| SW | Snout wide ( between nostrils) |
| LFE | Length of femur |
| LL | Length of leg |
| LA | Length of arm |
| LFO | Length of forearm |
| DHF | Distance between hind limbs and forelimbs |
| NDS | Number of dorsal scales around body |
| NVS | Number of ventral scales ( from mental to anterior edge of cloaca) |
| LA | Length of anus |
| RVS | Row of ventral scales ( in longitudinal rows) |

**TABLE 2.** Statistically significant ($p<0.05$) pairwise differences (+) among populations (Tukey's post- ANOVA pairwise analysis).

| | SVL | TL | ST | NL | PAL | LA | LAN | SDLT | SDLF | NDS | RVS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W.Azarbaijan- Kurdistan | | + | + | + | | + | + | | | | |
| W.Azarbaijan-Kermanshah | | | | | | + | | | | | |
| W.Azarbaijan- Lorestan | | | | | | | | | + | | + |
| W.Azarbaijan- Khuzistan | | | | | + | + | | + | + | + | |
| Kurdistan- Kermanshah | | | + | + | + | | + | + | | | + |
| Kurdistan- Lorestan | | | + | + | | | + | | | + | + |
| Kurdistan- Khuzistan | + | + | + | + | + | | + | | + | + | + |
| Kermanshah-Lorestan | | | | | + | | + | + | + | | + |
| Kermanshah- Khuzistan | + | | | | | | + | + | | + | |
| Lorestan- Khuzistan | + | | + | | + | + | | | + | + | |

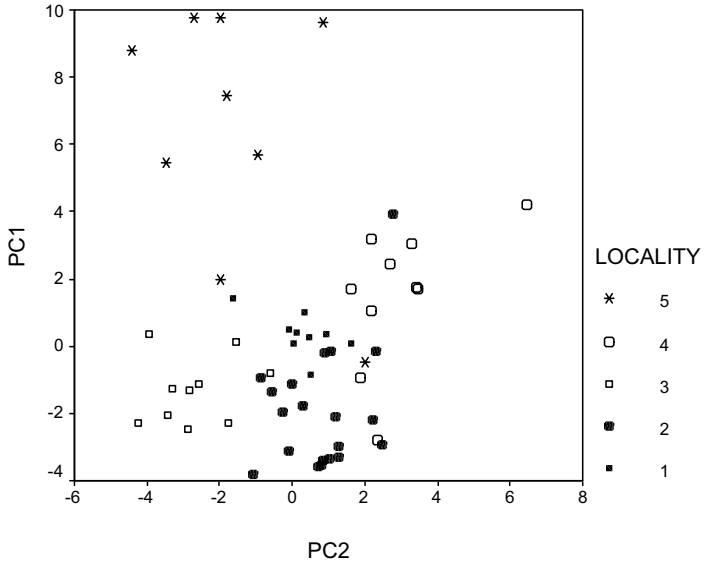


**FIG.2.-** Distribution of principal component scores for five populations of two taxa of the genus *Trachylepis*.1: W.Azerbaijan; 2: Kurdistan; 3: Kermanshah; 4: Lorestan; 5: Khuzistan.

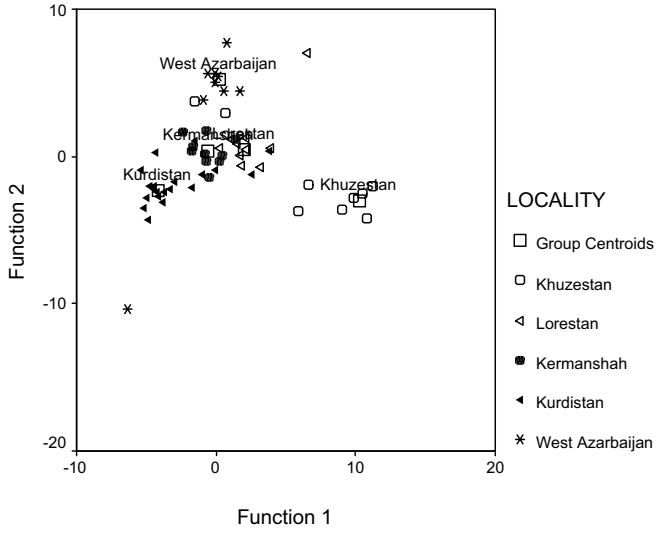


**FIG 3.-**Pattern of variation expressed by the two canonical variates for individuals of five populations of the genus *Trachylepis* on the discriminant functions.

Univariate analysis of the characters SVL, TL, LAN and NL, in five studied populations of *Trachylepis* is presented in Table 3. The means of SVL was smallest (73.55mm) in the Khuzestan population, belonging to a different taxon, followed by the Kermanshah (80.33mm), West Azerbaijan (80.93mm), Lorestan (82.58mm) and Kurdistan populations (84.36mm). The variation of SVL was statistically significant ($P<0.05$) among these populations. The mean of TL was smallest

**FIG.4.-**Comparison of *Trachylepis aurata transcaucasica* (left) and *T. septemtaeniata* (right)

in the Kurdistan population (95.57mm) (Table 3) followed by Kermanshah (104.06mm), Lorestan (104.44mm), West Azerbaijan (108.64), and Khuzestan (118.38mm) populations . As it is evident, the variation of TL among these populations was also statistically significant ($P<0.05$). The mean of LAN was smallest in the Kurdistan population (3.11mm) followed by the Kermanshah (4.07mm), West Azerbaijan (4.64mm) and Lorestan (4.99mm) and was greatest in the Khuzestan population (5.08mm), and its variation was statistically significant ($P<0.05$) among these populations (Table 3).
And finally, the mean of NL was smallest in the Khuzestan population (11.27mm) followed by the West Azerbaijan (11.86mm), Kermanshah (12.16mm), Lorestan (13.06mm), and was greatest in the Kurdistan population (14.05mm) (Table 3). The NL variation was statistically significant ($P<0.05$) among these populations. The results of univariate analysis of SVL, TL, LAN, and NL, suggest distinct patterns of intra- and –inter-specific geographic variation in these characters.

*-Meristic analysis (scale counts):*

In this analysis, scales of various parts of body were counted and the mean scale counts were compared. Most scale accounts varied significantly among various populations ($P<0.05$) (Table 3).

*Scales around body (NDS):* in the analysis of mean scales counts around body, most studied populations of *Trachylepis* were significantly different from one another ($P<0.05$). The five distinct populations are ordered according to the decreasing number of mean scale counts around body as follows: Kurdistan>Kermanshah>West Azerbaijan>Lorestan> Khuzestan (Table 3).

*Subdigital lamellae under fourth toe (SDLT) and fourth finger (SDLF):* as is shown in Table 3, there is a significantly higher mean number of subdigital lamellae under the fourth toe for Kermanshah population, followed by West Azerbaijan, Kurdistan and Lorestan. The Khuzestan population has the lowest number of subdigital lamellae under the fourth toe. On the other hand, this population has a significantly higher mean number of subdigital lamellae under fourth finger followed by Kermanshah, West Azerbaijan, Kurdistan, and Lorestan populations.

*Ventral scales in a longitudinal rows (RVS):* in this character also almost all five distinct populations are significantly different from one another ($P<0.05$), and can be ordered according to decreasing mean counts of RVS as follows: Lorestan> Khuzestan> Kermansha> Kurdistan > West Azerbaijan (Table 3).

**TABLE 3.-**Metric and Meristic differences (mean, standard errors, and ranges) in some significant characters among populations in two taxa of the genus *Trachylepis*.

| | N | SVL | TL | ST | NL | PAL | LA | LAN | SDLT | SDLF | NDS | RVS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W.Azarbaijan | 9 | 80.93±2.54<br>71.8-96.5 | 108.64±3.51<br>98.9-129.0 | .746±.021<br>.66-.8 | 11.86±.49<br>9.78-14 | 3.44±.10<br>3.02-3.8 | 7.37±.42<br>6.02-9.2 | 4.64±.20<br>3.83-5.6 | 9±.50<br>7-22 | 14.4±.17<br>14 -15 | 23.7±.27<br>23-25 | 11.8±.26<br>11-13 |
| Kurdistan | 20 | 84.36±1.25<br>73.43-94.1 | 95.57±2.73<br>72.05-122.0 | .89±.028<br>.67-1.1 | 14.05±.27<br>11.5-16.3 | 3.51±.07<br>2.80-4.3 | 6.42±.19<br>4.84-7.5 | 3.11±.12<br>2.43-4.4 | 17.9±.21<br>16-20 | 13.5±.24<br>11-15 | 24.9±.36<br>22-28 | 11.2±.21<br>10-13 |
| Kermanshah | 10 | 80.33±1.58<br>71.23-86.8 | 104.06±.59<br>100-106.1 | .77±.012<br>.7-.8 | 12.16±.19<br>11.3-13.0 | 3.23±.08<br>2.92-3.6 | 6.21±.07<br>5.91-5.9 | 4.07±.37<br>2.30-5.6 | 20±.59<br>17-22 | 14.5±.42<br>12-16 | 23.9± .58<br>21-26 | 12.1±.27<br>11-13 |
| Lorestan | 10 | 82.58±2.07<br>75.54-93.2 | 104.44±4.52<br>84.03-120.8 | .8±.038<br>.66-.9 | 13.06±.56<br>10.5-15.4 | 3.56±.09<br>3.25-4.3 | 6.92±.30<br>5.34-8.4 | 4.99±.37<br>3.12-6.4 | 17.8±.32<br>16-19 | 12.9±.27<br>12-14 | 23.6±.52<br>21-26 | 13.2±.29<br>11-14 |
| Khuzistan | 9 | 73.55±2.31<br>63.97-84.7 | 118.38±13.64<br>89.69-160.0 | .68±.056<br>.53-.8 | 11.27±.43<br>9.43-13.4 | 3.0±.12<br>2.51-3.5 | 5.90±.39<br>4.36-7.5 | 5.08±.34<br>3.41-6.3 | 17.5±.60<br>14-20 | 15.6±.72<br>14-21 | 20.3±.49<br>19-23 | 12.4±<br>.41<br>10-14 |

**TABLE 4.**-Factor loadings for the first four principal components derived from all specimens of *T. aurata transcaucasica* and *T. septemtaeniata*. Eleven of thirty-one characters are statistically significant and meet selection criteria for the PCA.

| Characters | PC1 | PC2 | PC3 | PC4 |
|---|---|---|---|---|
| SVL | .94 | .03 | -.12 | .19 |
| TL | .64 | .69 | -.30 | .01 |
| ST | -.20 | -.92 | .26 | -.01 |
| NL | .69 | -.16 | .45 | -.00 |
| PAL | .58 | -.09 | -.23 | -.41 |
| LA | .63 | -.01 | -.03 | .07 |
| LAN | -.79 | -.06 | .39 | -.38 |
| SDLT | .65 | -.06 | .39 | -.55 |
| SDLF | -.53 | .28 | .61 | .42 |
| NDS | -.49 | .36 | .32 | .37 |
| RVS | .08 | .44 | .42 | -.66 |
| Eigenvalue% of variance | 34.80 | 18.55 | 15.21 | 10.92 |
| Total | 9.74 | 5.27 | 4.25 | 3.05 |

**TABLE 5.**-Standardized coefficients for determining differences among all individuals of *T. aurata transcaucasica* and *T. septemtaeniata*. Eleven of thirty-one characters are statistically significant and meet selection criteria for the DFA.

| Characters | CV1 | CV2 | CV3 | CV4 |
|---|---|---|---|---|
| SVL | -.67 | -3.10 | -.95 | -2.04 |
| TL | 1.98 | .19 | .64 | 2.27 |
| ST | 1.98 | .19 | .64 | 2.27 |
| NL | .07 | -.77 | .16 | -1.00 |
| PAL | -1.07 | .99 | 1.25 | 1.33 |
| LA | -.75 | .18 | .00 | .19 |
| LAN | 1.33 | 1.39 | .50 | -.36 |
| SDLT | -.65 | -.02 | -.73 | -.60 |
| SDLF | .79 | -1.22 | -.54 | .86 |
| NDS | -.33 | .06 | .33 | .39 |
| RVS | .63 | -.43 | .06 | -.86 |
| Eigenvalue% of variance | 12.00 | 6.66 | 3.54 | 2.12 |
| Total | 49.3 | 27.4 | 14.6 | 8.7 |

**TABLE 6.** - Percentage of grouping membership in five populations of *T. a.transcaucasica* and *T. septemtaeniata* (=Khuzestan populatation).

| | | | Predicted Group Membership | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | LOCALITY | W.Azarbaijan | Kurdistan | Kermanshah | Lorestan | Khuzestan | Total |
| Original | Count | W.Azarbaijan | 8 | 0 | 1 | 0 | 0 | 9 |
| | | Kurdistan | 0 | 18 | 0 | 2 | 0 | 20 |
| | | Kermanshah | 0 | 1 | 9 | 0 | 0 | 10 |
| | | Lorestan | 0 | 1 | 0 | 9 | 0 | 10 |
| | | Khuzestan | 0 | 1 | 1 | 0 | 7 | 9 |
| | % | W.Azarbaijan | 88.9 | | | | | 100.0 |
| | | Kurdistan | | 90.0 | | | | 100.0 |
| | | Kermanshah | | | 90.0 | | | 100.0 |
| | | Lorestan | | | | 90.0 | | 100.0 |
| | | Khuzestan | | | | | 77.8 | 100.0 |

*-Multivariate analysis:*

The two multivariate techniques, Principal Component Analyses (PCA) and Discriminant Function Analysis (CVA) were employed to explain the patterns of morphological variation among four populations of *T.aurata transcaucasica* and a single population of *T. septemtaeniata*.

In the Principal Component Analysis, as is shown in Table 4, the first four principal components have captured 79.79% of the total information. Of this total, 34.80% is explained by PC1 in which SVL, LAN and LFO are mainly responsible for this variation; 18.55% explained by PC2 which is mainly attributed to ST, ORD and TL; 15.21% explained by PC3 mainly attributed to LFT, LFLH and SDLF; and 10.92% explained by PC4 in which IOR, RVS and SDLT are more important. These results show that the SVL, LAN, LFO, ST are most important characters in separating populations respectively (Table 4, and Figure 2).

The power of PCA comes with plotting the values of these newly constructed variables (principal components). Scattergram plots of the PC1 against PC2, is given in Figure 2.

The next stage of analysis aimed to provide more accurate discrimination keys, thus permitting the unambiguous determination of all the specimens. Initially, stepwise Discriminant Function Analysis was performed on populations. All discriminant functions had eigenvalues greater than one and were found to be statistically significant. (Table 5). On the other hand, as it shown (Figure 3 and Table 6), Discriminant analysis distinctly separates populations of *Trachylepis aurata transcaucasica* and *Trachylepis septemtaeniata*. The discriminant function gives complete classification for all the specimens of five studied populations of the genus *Trachylepis* in Iran.

## DISCUSSION

The family Scincidae occurs in a wide range of different habitats including arid, semi-arid, tropical, and subtropical regions. On the Iranian Plateau, six genera of scincids consisting of about 15 species occur which are as follows: *Ablepharus* (2 species), *Scincus* (1 species), *Ophiomorus* (6 species), *Eumeces* (3 species), *Chalcides* (1 species), and *Trachylepis* (3 species, the third species, *T. vitatta*, has not been treated in this paper). Results of univariate analysis of SVL seem to suggest a rather large divergence of the Kurdistan population from the others. It has been repeatedly argued both from theoretical and empirical bases, that the body size of vertebrate populations may change drastically in either of two directions (i.e. increasing or decreasing), chiefly depending on the presence or absence of territoriality in the animals, and the quality and quantity of available food (e.g. Case, 1978; Shine, 1987; Schwaner, 1980; Kohnno and Ota, 1991). Furthermore, several authors demonstrated that

such changes could take place within a "moment" compared to the normal evolutionary time scale with or without changes in genetic level (Hasegawa, 1990; Case and Schwaner, 1993). Thus, the distinctly largest body size of the Kurdistan populations of *Trachylepis aurata transcaucasica* alone may not necessarily reflect exclusively long isolation from the remaining conspecific populations. On the other hand, having a small body size in Khuzestan population drastically supports its separation as a well established species.in morphological (and most likely in genetic) level.

In relation to coloration and color pattern, the two main color pattern features of *T. a transcaucasica* and *T. septemtaeniata* were quantified, and also an intermediate form was recognized near the southern end of distribution of *T. a. transcaucasica* (Poldokhtar region in northern Khuzistan, close to western foothills of the Zagros Mountains, recognized as sympatric zone). This intermediate form has a feebly yellowish ground color with a relatively sharp banding pattern from the occipital region toward the middorsal, superficially resembling *T. septemtaeniata*. In *T. a. transcaucasica* variation in banding appears random and not suggesting any geographical correlation among various populations. On the other hand, *T. aurata transcaucasica* shows sexual dimorphism neither in external morphology nor skull morphology (Faizi and Rastegar – Pouyani, In press). Some characters were common in all samples of the two taxa including: Pterygoid teeth were present and about 3 teeth in each side above the pterygoid plate. This character is common in all African- Malagasy species (Greer, 1970b). As mentioned before, all the Iranian species of *Trachylepis* belong to this radiation. Dorsal scales are, more or less, keeled and reproduction is viviparous placentrophic in *Trachylepis aurata transcaucasica* (personal observation).

As shown before, both univariate and multivariate statistical analyses represent some differences between the two taxa (e.g., *Trachylepis aurata transcaucasica* and *T. septemtaeniata*). In addition to differences in meristic and metric characters, the differentiation of the above-mentioned taxa is also based on differences in dorsal color pattern in correlation with different geographic regions of occurrence (Figures 2, 3 and 4). And also based on all the available evidence with especial reference to skull morphology (Faizi and Rastegar-Pouyani, In press), *T. a. transcaucasica* and *T. septemtaeniata* are two distinct taxa at the subspecific (and not the specific) level. So, based on our previous as well as present study, the separation of *T. septemtaeniata* from *T. aurata* is inadvisable and that *T. septemtaeniata* should stay under the specific name of "*aurata"* as *T. aurata septemtaeniata* and the use of binomen *"T. septemtaeniata"* should be discontinued.

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## APPENDIX:

*Material examined*

*-Trachylepis aurata transcaucasica*

RUZM 001 – 005 , West Azarbaijan Province, vicinity of Turkey border, Ghotur on the road between Lighwan and Sefideh khan (38°,35́ N – 45°,02́ E); RUZM 006-009, West Azarbaijan, Bukan, on the road to Mahabad, (36°,32́ N – 46°,10́ E); RUZM 010-013, Kurdistan Province, Baneh, on the road to Saghez, (35°,58́ N – 45°,55́ E); RUZM 014-020, Kurdistan Province, Marivan, on the road to Saghez (Sarshiv road), 35°,22́ N – 46°,14́ E); RUZM 021-029, Kurdistan Province, Sarvabad, (35°,17́ N – 46°,21́ E); RUZM 030-034, Kermanshah Province, on the road to Eslam Abad-e- Gharb, (34°,19́ N – 47°,07́ E); RUZM 035-039, Kermanshah Province, on the road to Paveh, Kawat, (34°,55́ N – 46°,27́ E); RUZM 040-049, Lorestan Province, Poldokhtar, on the road to Andimeshk, (33°,08́ N – 47,43

*-Trachylepis septemataeniata*

MMTT 1704, Khuzestan Province, Izeh; MMTT 1705, Khuzestan Province, East coast of Dez river; MMTT 1757, Khuzestan Province, Izeh; RUZM 050, Fars Province, Firouz Abad; MMTT 1841, Khuzestan, Ramhormoz; MMTT 1874, Khuzestan, Darkhuvin; MMTT 2116, Khuzestan, 20 Km S.W. Izeh; RUZM 051, Fars Province, Dashte Arjan.

ABBREVIATIONS: RUZM= Razi University Zoological Museum. MMTT=Iran National Natural History Museum.

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