

# Character of Variability of the Land Muslus Leucozonellahypophaea (Gastropoda, Pulmonata) from Alai Chatkal Ridge

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**Abstract:** *The article “The nature of the variability of terrestrial mollusc Leucozonella Hypophaea (Gastropoda, Pulmonata) from the Alai and Chatkal ridges” analyzes the conchological variability and establishes that the variability of conchological signs of terrestrial mollusks is very closely related to the environmental factors of the environment in which they inhabit. The study of variability of terrestrial mollusks remains one of the little-studied questions in the Malacofauna not only in Uzbekistan but also in the whole republics of Central Asia. The variability of terrestrial mollusks in Central Asia is cited in a number of works [1, 2, 3, 4], however, we could not find any information about the variability of Leucozonellahypophaea (Lindholm, 1927), and because of this we studied the nature of variability of the species under consideration.*

**Keywords:** Work, ridge, character

## 1. Material and Methods

The material for the study was collected within two years (2016-2017) from the Alai and Chatkal ranges. On the Alay ridge, the Shakhimardansain basin is 1500–1700 m above sea level. on the scree under stones, 105 specimens were collected in total, 71 of which were mature. At an altitude of 2, 200 - 2, 400 m, among archovniki, 75 specimens were collected under stones. 59 of them are mature.

On Chatkal ridge in the valley. Piyazdy-Sai at an altitude of 1500–1800 m above sea level. In open places, 53 specimens were collected among plants. of them, 41 individual specimens and at an altitude of 1800-2000 m above sea level, 65 specimens were collected in scree with plants.

During the analysis of morphological characters, 30 mature specimens were randomly selected from each sample. For each individual under a binocular microscope MBS-9 with an accuracy of 0.05 mm. The shell was measured by the method of A.A. Shileiko [5] (1984), shell height (BP), large shell diameter (BD), small shell diameter (MD), and mouth height (IW). In a static analysis of morphometric parameters, the arithmetic mean deviation (M) and coefficient of variation (CV) were calculated for each population.

The results were processed using the Statistika 17 program, based on the GF method. Lakin [6].

## 2. Result and Discussion

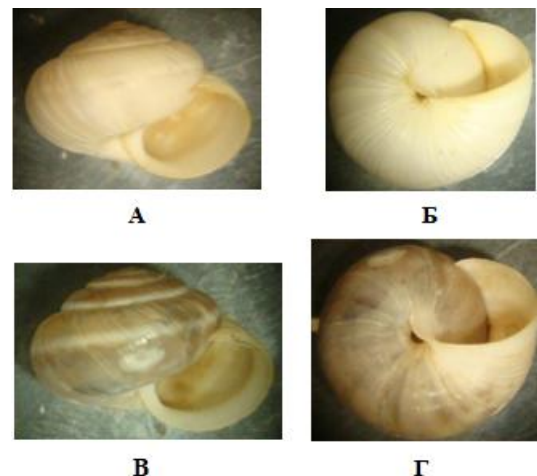
Leucozonellahypophaea. It occurs in the foothills and mountain areas at an altitude of 1500-2100 m above sea level. m. It dwells among shrubs, as well as under stones and on open slopes.

The variability of Leucozonellahypophaea is studied in the following places.

On the Alay ridge near the village of Shakhimardan, mollusks from two biotopes were studied.

1st biotope. At an altitude of 1500-1700 m above sea level. mollusks were found on scree under stones (Fig. 1.1.A, B) with a pressed-conic, thick-walled shell. Turns 6 moderately convex last turn to the mouth is lowered. The color of the upper 3 turns is light brown, the lower ones are light horny. The peripheral light tape is barely noticeable. Sculpture in the form of roughly radial wrinkles. The mouth is round, oblique, the lip is absent. The navel is point-like, which the greater half is closed by the columellar edges.

2nd biotope. At an altitude of 2200 - 2400 m among junipers, clams (Fig. 1.B, D) with a conical, moderately thick-walled shell and a dome-shaped curl were found under the stones. Turns 5.5 are moderately convex, the color is dark brown, light spiral tape runs along the periphery of the last turn and at the seam of the previous turns. Sculpture in the form of thick radial ismication. At the mouth there is a white, strongly spread lip. Navel as in the first biotope.

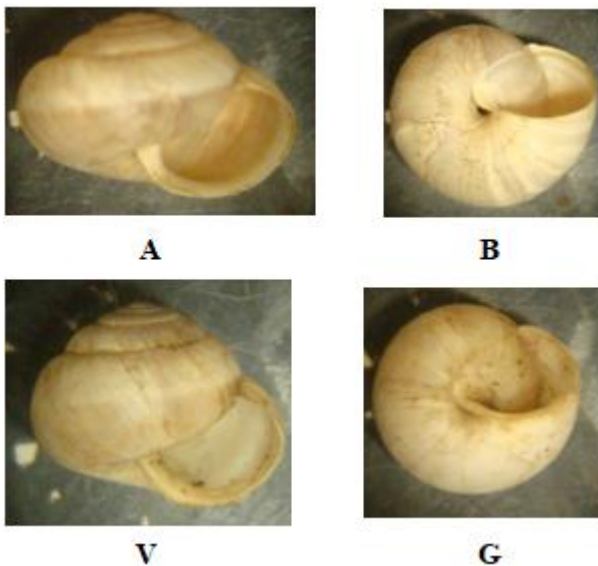


**Figure 1:** Shell Leucozonellahypophaea from the Alai  
Range: A, B - 1st biotope; B, D-2 - th biotope

On Chatkal ridge in the valley. Piyazdy-Sai studied mollusks from two biotopes.

1st biotope: Open spaces among plants at an altitude of 1500–1800 m above sea level. The mollusks are very small in size, the shell (Fig. 2.A, B) pressed with a conical curl, 4.5 - 5 turns, stepped. The color of the upper side of the shell is dirty-white, below the periphery is greyish-horny. Sculpture in the form of thick radial striation. The edges of the mouth are connected with a thin callus, in the mouth there is a very blurred lip. Point-shaped navel half closed columellar edges.

2 biotope: Sprinkle with plants (near the first biotope), at an altitude of 1800–2000 m above sea level. The shell (Fig. 2.B, D) is almost spherical, hard-walled. Turnovers 5.5 well convex. Sculpture in the form of thick wrinkles. The mouth is slightly oblique, oval; the edges are not turned away, except for the columellar, which almost completely covers the point-like navel. At the mouth of the lip is missing.



**Figure 2:** Shell *Leukozonellahypophaea* from Chatkal Ridge: A, B - 1st biotope; B, D-2 - th biotope

After studying all the available material, it can be noted that the variability of the shape of the shell, like other conchological features of terrestrial mollusks, is very closely related to the environmental factors of the environment in which they inhabit. For example, in the *Leukozonellahypophaea* habitat on the Alay range, not far from the village of Shakhimardan, the shell is conical,

while the mollusks living on the Chatkal ridge in the valley. Piyazdy-Saysredi bushes are spherical shell shape. Having studied the variability of the shape of the shell, we can draw the following conclusion that the variability of the shape of the shell is in a certain way related to the surface of the substrate on which the animal is located.

- Mollusks conic or pressed by a shell live in thickets of bushes and stony-gravelly slopes.
- The spherical shell is characteristic of the inhabitants of moist mesophilic sites with forests, shrubs or tall grasses.

As can be seen from the above material, the variability manifests itself in the color of the shell. In the studied species, the shell is characterized by a common horn color of varying intensity, with a light diffuse strip along the periphery.

The study showed that the variability of shell coloration, like other traits, is directly related to the environmental factors of the environment in which they inhabit.

For example, *uL. hypophaea* are aboard on the southern slope (Alai Range, near the village of Shakhimardan); the color of the shell is light brown.

It should be noted that the mollusks of the southern slopes spend life on the stems of semi-shrubs and shrubs. Apparently, the bright shell is clearly an adaptive trait that allows to shield the sun's rays.

Mollusks inhabiting the northern slopes: *L. hypophaea* (Alai Range), is characterized by a reddish-brown or dark brown shell color

It should be noted that these mollusks inhabit more humid and shaded habitats, where under the conditions of the microclimate there is no need to reflect the bright rays of the sun.

Apparently, therefore, these mollusks have a shell color reddish brown or dark brown.

The study showed that depending on the height of the terrain and the nature of biotopes, the ratio of shell sizes varies (see table).

**Table 3.1.11:** Biotopic variability of conchological signs of *Leukozonellahypophaea* shell (dimensions in mm)

№	location	BP	БД	МД	ВУ
1	At an altitude of 1500-1700 m above the level near the village of Shakhimardan (Alay Range)	12, 18±0, 5 CV % 2, 19	16, 17±0, 5 CV % 4, 43	14, 13 ±0, 5 CV % 1, 64	8, 16±0, 4 CV % 2, 49
2	At an altitude of 2200 - 2400m above the level near the village of Shakhimardan (Alay Range)	5, 08±0, 4 CV % 2, 16	8, 17±0, 5 CV % 4, 36	7, 14±0, 5 CV % 1, 80	4, 5±0, 2 CV % 2, 58
3	At an altitude of 1500-1800 m above the gorge. Piyazdy-Say (Chatkal Range)	6, 97±0, 6 CV % 3, 71	8, 95±0, 6 CV % 4, 85	7, 93±0, 5 CV % 3, 00	5, 00±0, 2 CV % 2, 49
4	At an altitude of 1800-2000 m. Above the level. Gorge. Piyazdy-Say (Chatkal Range)	8, 66±0, 5 CV % 2, 68	11, 01±0, 1 CV % 5, 11	9, 32±0, 6 CV % 3, 28	6, 14±0, 2 CV % 2, 76

From the data of this table it is clear that the most stable among the studied traits are the height of the shell and the mouths with CV% less than 3%, and the most variable are the large diameter.

### 3. Conclusion

The high stability of relative traits (table) indicates the proportionality of growth processes during ontogenesis and is obviously an adaptive response that provides the mollusks with an optimal ratio of shell size and energy expenditure on movement. Thus, having studied the variability of conchological traits, we identified certain regularity in the change of conchological traits associated with specific habitats. Consequently, all signs of the shell arose in connection with the general aridization of the climate, depending on the characteristics of the habitats.

### References

- [1] B. Tsvetkov. Variability: *Frucicolalantii* Lndh. (Mollusca. Pulmonale) // Tr. Zool MSU Museum. M 1941. T. 6. S. 287-302.
- [2] Matekin P.V. Adaptive variability and process of speciation in the Central Asian land mollusks of the family Enidae // Zool. journals - 1959. T.33. Issue 10. pp. 1518-1536.
- [3] Shileyko A.A. Malacology: Deceptive similarity and nature of differences // Nature. - 1971. – No 7. - p.75 - 80
- [4] Uvalieva K.K. Terrestrial mollusks of Kazakhstan and adjacent territories. - Alma-Ata: Science Kaz. SSR, 1990. - 224s.
- [5] Shileyko A.A. Terrestrial mollusks of the suborder Pupillina of the USSR fauna (Gastropoda, Pulmonota, Geophila). Fauna of the USSR. Shellfish - L.: Science Leningrad Branch, 1984. T.Z. Issue3. No. 130. - 399 p.
- [6] Lakin G.F. Biometrics / G.F. Lakin. M .: Higher School, 1990. 352 p