

# Areological Analysis of The Brassicaceae Family in The Floras of The Kuhitang Ridge

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**Abstract:** The Kuhitang ridge is located in the south-western part of the Pamir-Alay Mountain range. Administratively, it belongs to the territory of Sherabad district of Surkhandarya region.

The western slope of the Kuhitang ridge is the territory of the Republic of Turkmenistan, where the Kuhitang Nature Reserve (total area 27139 ha) is located [1, 2]. The total length of the border from south to north is about 70 km and is located at an altitude of 850-3137 m above sea level. The average height of the watershed is 2682 m in the north (Khatak section), 3137 m in the central part (Ayri Bobo peak of Kampirtepa section) and 2361 m in the southern part (Vandob section).

**Keywords:** Kuhitang ridge, *Buchingera axillaris* Boiss, *Goldbachia laevigata*, *Strigosella trichocarpa*, *Sisymbrium septulatum* DC

## Introduction

The natural-geographical description of the Kuhitang ridge is S.A. Nevsky [11], N.A. Merkulovich [10], R.V. Camelin [5, 6], F.O. Hasanov [7] and A.J.Ibragimov [8, 9, 10] also found their reflection.

Scientific studies have revealed that the flora of the Kuhitang ridge contains 46 species belonging to 36 genera of the family *Brassicaceae*. The *Brassicaceae* family ranks fourth among the leading families in the Kuhitang flora (46 species or 6.19%).

The distribution of species in the flora of the mountainous regions of Central Asia by habitat type was determined by R.V. Based on the classification proposed by Kamelin [7, 8], the implementation was accepted. At the same time, various researchers make changes depending on the location of the flora being studied, the goals and objectives of the work, and the composition of the species. In particular, L.S. Krasovskaya and I.G. The Levichevs [9] point out the need to adhere to the principle of hierarchy in the categorization of range types, that is, the initial type implies that the type should be included in the next type of mass. R.V. According to Camelin [5], it is better to derive from the general configuration of the species area in the separation of the main area types, and the existing classifications should be based on the ecological characteristics of the species and the coordination of the species. Therefore, the geographical structure of the *Brassicaceae* family in the flora of the Kuhitang ridge is based on the description that is favorable and generally accepted for the native regions of Central Asia [5].

## Literature View

Based on the study of representatives of the family *Brassicaceae* in the flora of the Kuhitang ridge, we divided them into 23 habitat species.

1. **Southern Pamir Ali type:** includes mountain ranges of southern Tajikistan and Uzbekistan (from the Kuhitang ridge to Hazrati-Imamaskarid Mountain). This type of page species *Asperuginoides axillaries* (Boiss. et Hohen.) Rauschert. (= *Buchingera axillaris* Boiss.).
2. **Kopetdag-Southern Pamir Ali type:** Starting from Kopetdag, it covers the south-western Gissar and southern Tajikistan mountain ranges. This type of page is *Isatis hirtocalyx* Franch. (= *Sameraria hirtocalyx* (Franch.) Nabiev).
3. **Pamir type:** covers the whole Pamir-Alay (Turkestan, without the eastern part of the Alay, Zerafshan, Gissar, Korategin, Peter I, Darvaz, and the Academy of Sciences) and the Western Pamirs (Badakhshan). This type includes 2 species. *Goldbachia laevigata* (M. Bieb.) DC, *Megacarpaea gigantea* Regel et al.

4. **Western-Pamirs:** This type of range includes the Western Tien-Shan (Mount Chu-Ili, Karatag, from the western part of the ridge of Kyrgyzstan to the ridge of Kurama and Fergana) and the Pamir-Alay. There are 2 species of this type: *Goldbachia verrucosa* Kom., *Stroganowia paniculata* Regel et Schmalh and others.
5. **Mountain-Central Asian type:** this type is located on the border of the Central Asian province and includes the Western Tien Shan and the Pamir-Alay (except the Eastern Pamirs). This type of habitat includes 3 species: *Strigosella trichocarpa* (Boiss.et Buhse) Botsch., *Strigosella turkestanica* (Lithuania) Botsch., *Pachypterygium brevipes* Bunge and others.
6. **Kopetdag-Central Asian type:** is located on the border of Central Asia and mountainous Turkmenistan, and extends to northern Afghanistan and eastern Iran, and sometimes to Balkhash. The range includes 1 species (0.67%): *Sisymbrium septulatum* DC.
7. **Khorasan-Central Asian type:** this area type covers the territory from Khorasan-Kopetdag to the Central Asian mountain ranges. This type includes 3 species: *Pseudoclausia turkestanica* (Lipsky) A.Vassil., *Trichochiton inconspicuum* Kom., *Litwinowia tenuissima* (Pall.) Woronow ex Pavlov and others.
8. **Altai-Central Asia:** includes Tien Shan, Pamir-Alay, Dzungarian Alatoi, Tarbagatai and Altai, Parapamiz, Xinjiang, Kulja and Kashgar. This type includes 1 species: *Chalcanthus renifolius* Boiss.
9. **Turan type:** this type of range covers the Central Asian plains and the surrounding mountain ranges, the territories up to Kuja, Kashgar, northern Afghanistan and Iran. Contains 1 species: *Cryptospora omissa* Botsch .
10. **Central Asian type:** covers part of the Central Asian mountain range from Tarbagatai to Kopetdag, and partly extends to Western Mongolia, China, Afghanistan and Northern Iran. Contains 2 species: *Sinapis arvensis* L., *Cardaria draba* (L.) Desv and others.
11. **Himalayan type:** Western Himalayas, Afghanistan, Central Asia, and part of Tibet, Western China, Mongolia and Altai. This type includes 1 species: *Crambe kotschyana* Boiss.
12. **The Iranian-Himalayan type:** includes the borders of the territories from Eastern Anatolia (Turkey) to Iran, the Caucasus, Mountainous Central Asia, and the Western Himalayas. It consists of 3 species: *Campyloptera carnea* (Banks ET Soland.) Botsch. ET Vved., *Diptychocarpus strictus* (Fisch.) Trautv, *Arabidopsis wallichii* (Hook.f.et Thoms.) N. Busch and others.
13. **From the East-Ancient Middle Ages:** from Palestine and Asia Minor to the Western Himalayas and Altai, Syria, Iran, the Caucasus partially covers Tibet and Xinjiang. There are 1 species in this type of habitat: *Alyssum marginatum* Steud.
14. **Ancient type:** extends from Spain and Morocco to the Western Himalayas. This includes Western China and Western Mongolia, as well as parts of Central Europe. Contains 5 species (5.79%): *Arabis recta* Vill. (= *A. Auriculata* Lam.), *A. aucheri* Boiss. (= *A. Montbretiana* Boiss., *Alyssum desertorum* Stapf, *Drabopsis nuda* (Belanger) Stapf *Neslia apiculata* Fisch. et C.A. Mey. And others.
15. **Euro-Eastern Mediterranean type:** this type includes Eastern Mediterranean, Western and Central Europe. It contains 1 species *Erophila verna* (L.) DC.
16. **The Pontic-Eastern Mediterranean type:** covers the area from the Boreal region to the eastern part of the Ancient Mediterranean (from Syria and Palestine to the Western Himalayas and Xinjiang). This type includes 2 species of plants: *Cardaria repens* (Schrenk.) Jarm, *Sisymbrium irio* L, and others.
17. **Pontic-Ancient Mediterranean type:** the territories of Ancient Mediterranean and Northern Black Sea, extending partly to Central Europe. There are 2 species: *Alyssum campestre* L., *Clypeola jonthlaspi* L. and others.
18. **European-Ancient Mediterranean Type:** Ancient Mediterranean, the southern part of Siberia, covers the territory from Europe to Scandinavia. This type includes 3 species: *Conringia orientalis* (L.) Dumort., *Meniocus linifolius* (Steph.) DC., *Microthlaspi perfoliatum* (L.) F. K. Mey. (= *T. Perfoliatum* L.) And others.
19. **The Euro-Caucasian-Central Asian-Altai-Himalayan disjunctive type:** is located on the border of the mountain forests of Europe, the Caucasus, Altai and Central Asia and consists of 3 species:

*Nasturtium officinale* R. Br. (= *N. Fontanum*), *Alliaria petiolata* (M. Bieb.) Cavara et Grande, *Chorispora tenella* (Pall.) DC.

20. **The Ancient Mediterranean-Paleotropic type:** includes the northern part of the Ancient Mediterranean and a large part of the Paleotropical floristic world. Representatives of this type of habitat are 2 species: *Arabidopsis pumila* (Steph.) N. Busch., *Strigosella africana* (L.) Botsch.
21. **Paleartic type:** includes species that are widespread in the temperate and subtropical regions of the Holarctic floristic world on the border of the New World. This species includes 1 species: *Barbarea vulgaris* R. Br.
22. **The holarctic type:** covers the continental part of the entire Northern Hemisphere. This type includes 2 species: *Brassica campestris* L., *Thlaspi arvense* L. and others.
23. **Plural regional type:** this type of habitat includes at least two species distributed in the floristic world. There are 2 species: *Capsella bursa-pastoris* (L.) Medik, *Descurainia sophia* (L.) Webb. Ex Prantl, and others.

### Conclusion

The results of the analysis of habitats show that the first place in terms of the number of species is ancient (5), Central Asia, Khorasan-Central Asia, Iran-Himalayas, Europe-ancient Mediterranean, Euro-Caucasus-Central Asia. The remaining range types consist of 1 or 2 rounds.

Floristic studies show that this family occupies 3-6 places in the flora of the ancient Mediterranean. Thus, the results of the analysis of habitat types show that the leading position of the Brassicaceae family is located in the territory of the Ancient Mediterranean, the main centers of species diversity.

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