

# ANALYSIS OF THE HALOPHYTIC FLORA OF THE TERRITORIES OF SPRING AREAS OF WEST KAZAKHSTAN

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The article presents the results of the analysis of halophytic flora in the areas adjacent to the springs of Western Kazakhstan. The names of halophyte species for each spring tract in the regions of Western Kazakhstan are indicated. Cluster analysis of the number of plant species and halophytes in the flora in relation to hydrochemical parameters is presented. A correlation analysis of the number of plant species and halophytes in the flora in relation to the hydrochemical parameters of springs is presented.

**Key words:** halophytes, flora, spring tracts, Western Kazakhstan, cluster and correlation analysis of flora.

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## REFERENCES

- Hydrogeology of the USSR. T. XXXV: Western Kazakhstan.* Moscow: Nedra, 1971. 522 p. (in Russian).
- GOST 31861-2012. Water. General requirements for sampling.* (in Russian).
- GOST 33045-2014. Drinking water. Methods for the determination of nitrogen-containing substances.* (in Russian).
- GOST 4245-72. Drinking water. Method for determination of chloride content.* (in Russian).
- Darbaeva T. E., Chukalina O. N. *Catalog of plants of the West Kazakhstan region.* Uralsk: IP Seitzhanova Zh. D., 2011. 288 p. (in Russian).
- Idrisova G. Z., Sergeeva I. V., Shevchenko E. N., Ponomareva A. L. Rare and Protected Plant Species of Springs in Western Kazakhstan. *Bulletin of Botanic Garden of Saratov State University*, 2018, vol. 16, iss. 2, pp. 66 – 71 (in Russian).
- Mayevsky P. F. *Flora of middle zone of the European part of the USSR.* Moscow: KMK Scientific Press Ltd., 2014. 635 p. (In Russian).
- Mayevsky P. F. *Flora of the middle zone of the European part of the USSR.* Leningrad: Kolos, 1964. 879 p. (In Russian).

Cherepanov S. K. *Vascular plants of Russia and neighboring countries (within the former USSR)*. St. Petersburg: Mir i Sem'ya Publ., 1995. 992 p. (in Russian).

Matveev N. M. *Bioecological analysis of flora and vegetation (on the example of the forest-steppe and steppe zones): a tutorial*. Samara: Izdatel'stvo Samarskogo Universiteta, 2006. 311 p. (In Russian).

*GOST 23268.4-78. Mineral water drinking medicinal, medical table and natural table. Method for the determination of sulfate ions.* (in Russian).

Handbook of the plants of the Middle Asia. Vol. 1 – 10. Tashkent: Publishing house “Fan” of the Uzbek SSR, 1968 – 1993. (In Russian).

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