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K. Izbastina*[1], S. Aipeisova[2], M. Kurmanbayeva[1], A. Kurmantayeva[3], A. Baishanbo[4]

[1]Al-Farabi Kazakh national university,
Almaty, Kazakhstan
[2]K. Zhubanov Aktyubinsk regional state University, Aktobe, Kazakhstan
[3]Institute of botany and phytointroduction, Almaty, Kazakhstan
[4]Xinjiang medical university, Xinjiang institute of Kazakh drug medicine, Urumqi, China
*E-mail: izbastina.k@gmail.com

REVIEW OF GENUS *ANTHEMIS* L. (*ASTERACEAE*) SPECIES, STORED IN SOME KAZAKHSTAN HERBARIAL FUNDS

The big and important task is represented by research of rare endangered species for the purpose of their preservation, profound studying of features of rare species of plants and their resources is necessary. The purpose of this work is careful viewing of specific structure of the sort Anthemis L., stored in the herbarial funds of Institute of botany and phytointroduction of Ministry of Education and Science of the Republic of Kazakhstan, Al-Farabi Kazakh National University, K. Zhubanov Aktyubinsk regional state university. For achievement of goals the abstract of types of the sort Anthemis L. is made, meeting in the territory of Kazakhstan by means of critical viewing of the herbarial material which is stored in the herbarial funds. Scientific and practical value are that herbarial samples of the studied type of the sort Anthemis L., met in the territory of Kazakhstan, will be used by students for definition on special courses and on big practical works on botany. As a result of careful viewing, there are 74 herbarial samples of the sort Anthemis L., the abstract of types of the sort Anthemis L. is made in the territory of Kazakhstan, including the location of a type of Anthemis trotzkiana Claus in the research territory (The Aktyubinsk region) is given. According to the results of research, 5 types of the sort Anthemis L. have been noted. They are met in the territory of Kazakhstan (Anthemis trotzkiana Claus, Anthemis candidissima Willd.ex Spreng., Anthemis tinctoria L., Anthemis cotula L., Anthemis microcephala (Schrenk) B. Fedtsch.), out of 6, except for the A. deserticola Krasch. & M. Pop. type. In the herbarial funds there have been studied in total 12 gherbarial samples of the only Red book type of Anthemis trotzkiana, meeting in the territory of Kazakhstan, including the own sample. The herbarial materials collected in the course of the field researches will fill up herbarial funds of Institute of botany and MES of RK phytointroduction, Al-Farabi Kazakh National University and K. Zhubanov Aktyubinsk regional state university. Results of research have theoretical value and can be used for the solution of questions of systematization.

Key words: Asteraceae, Anthemis L., Anthemis trotzkiana Claus, rare species, herbarial funds.

К. Избастина*[1], С. Айпеисова[2], М. Курманбаева[1], А. Курмантаева[3], А. Бейсенбай[4]

[1]Әл-Фараби атындағы Қазақ ұлттық университеті,
Алматы қ., Қазақстан
[2]Қ. Жұбанов атындағы Ақтөбе өңірлік мемлекеттік университеті,
Ақтөбе қ., Қазақстан
[3]«Ботаника және фитоинтродукция институты»,
Алматы қ., Қазақстан
[4]Шинжаң медицина университеті, ҚХР, Үрімжі
*E-mail: izbastina.k@gmail.com

Қазақстанның кейбір гербарий қорларында сақталған *Anthemis* L. (*Asteraceae*) туысының түрлеріне шолу

Сирек және жойылып бара жатқан түрлерді қорғауда өсімдіктердің сирек кездесетін түрлерінің ерекшеліктері мен олардың ресурстарын терең зерттеу үлкен және маңызды мәселе. Берілген жұмыстың мақсаты ҚР БҒМ ҒК «Ботаника және фитоинтродукция институты», әл-Фараби

атындағы Қазақ ұлттық университеті және Қ. Жұбанов атындағы Ақтөбе өңірлік мемлекеттік университеті гербарий қорларында сақталған Anthemis L. туысының түрлік құрамын қарау болып табылады. Қойылған мақсатқа жету үшін гербарий қорларындағы материалдарды қарай отырып, Қазақстан аумағында кездесетін Anthemis L. туысы түрлерінің конспектісі құрылды. Жұмыстың ғылыми және тәжірибелік маңызы, арнайы курстар мен ботаникадан үлкен практикум сабақтарында студенттер Қазақстан территориясында кездесетін Anthemis L. туысы түрлерінің зерттелген гербарий үлгілерін анықтайды. Қазақстанда кездесетін Anthemis L. туыс түрлерінің 74 гербарий үлгілерін қарау нәтижесінде конспекті құрастырылды, сонымен бірге Anthemis trotzkiana түрінің зерттеу территориясында (Ақтөбе облысы) нақты орналасқан нүктелері берілген. Зерттеу жұмысының нәтижесі бойынша Anthemis L. туысының Қазақстанда кездесетін 6 түрінің A. deserticola басқа, 5 түрі (Anthemis trotzkiana Claus., Anthemis candidissima Willd., Anthemis tinctoria L., Anthemis cotula L., Anthemis microcephala (Schrenk) B. Fedtsch.) көрсетілді. Гербарий қорларында Қазақстан территориясында кездесетін Anthemis L. туысының Қызыл кітапқа енген жалғыз түрі Anthemis trotzkiana өсімдігінің Ақтөбе облысы территориясынан жиналған үлгісін қосқанда, жалпы 12 гербарий үлгілері анықталған. Далалық зерттеу барысында жиналған гербарий материалдары ҚР БҒМ ҒК «Ботаника және фитоинтродукция институты», әл-Фараби атындағы Қазақ ұлттық университеті және Қ. Жұбанов атындағы Ақтөбе өңірлік мемлекеттік университетінің гербарий қорларын толықтырады. Жұмыс нәтижелері теориялық мәнге ие және систематика сұрақтарын шешуде пайдаланылуы мүмкін.

Түйін сөздер: Asteraceae, Anthemis L., Anthemis trotzkiana Claus, сирек түр, гербарий қорлары.

К. Избастина[1], С. Айпеисова[2], М. Курманбаева[3], А. Курмантаева[4], А. Бейсенбай[5]

[1]Казахский национальный университет имени аль-Фараби,
Республика Казахстан, г. Алматы
[2]Актюбинский региональный государственный университет им. К. Жубанова,
Республика Казахстан, г. Актобе
[3] «Институт ботаники и фитоинтродукции» КН МОН РК.,
Республика Казахстан, г. Алматы,
[4] Синцзянский медицинский университет, Китай, Урумчи
E-mail: izbastina.k@gmail.com

Обзор видов рода *Anthemis* L. *(Asteraceae)*, хранящихся в некоторых гербарных фондах Казахстана

Большую и важную задачу представляют исследования редких исчезающих видов с целью их сохранения, в связи с чем необходимо углубленное изучение особенностей редких видов растений и их ресурсов. Целью данной работы является тщательный просмотр видового состава рода Anthemis L., хранящихся в гербарных фондах Института ботаники и фитоинтродукции МОН РК, Казахского национального университета им. аль-Фараби, Актюбинского регионального государственного университета имени К. Жубанова. Для достижения цели составлен конспект видов рода Anthemis L., встречающихся на территории Казахстана посредством критического просмотра гербарного материала, хранящегося в гербарных фондах. Научное и практическое значение заключается в том, что гербарные образцы исследованного вида рода AnthemisL., встречающиеся на территории Казахстана, будут использоваться студентами для определения на специальных курсах и на больших практикумах по ботанике. В результате тщательного просмотра 74 гербарных образцов рода Anthemis L. составлен конспект видов рода Anthemis L. на территории Казахстана, в том числе приводится местонахождение вида Anthemis trotzkiana Claus на исследуемой территории (Актюбинской области). По результатам работы было отмечено 5 видов рода Anthemis L., встречающихся на территории Казахстана (Anthemis trotzkiana Claus., Anthemis candidissima Willd., Anthemis tinctoria L., Anthemis cotula L., Anthemis microcephala (Schrenk) B. Fedtsch.), из 6, кроме вида A. deserticola. В гербарных фондах были изучены в общей сложности 12 гербарных образцов единственного краснокнижного вида Anthemis trotzkiana из рода Anthemis L., произрастающих на территории Казахстана, включая образцы собранные нами в Актюбинской области. Гербарные материалы, собранные в процессе полевых исследований, пополнят гербарные фонды Института ботаники и фитоинтродукции МОН РК, КазНУ им.аль-Фараби и Актюбинского регионального государственного университета имени К. Жубанова. Результаты работы имеют теоретическое значение и могут быть использованы для решения вопросов систематики.

Ключевые слова: Asteraceae, Anthemis L., Anthemis trotzkiana Claus, редкие вид, гербарные фонды.

Introduction

Now the problem of preservation of a biodiversity of plants because of fast reduction of areas of distribution of many wild-growing types in connection with vigorous economic activity of the person is very urgent (Zholobova, 2012: 195). Anthropogenous impact on flora was many-sided, including direct alienation of phytoweight, destruction, pollution by xenobiotics, climatic changes, etc. which lead to extinction of separate types that as a result some species of plants becomes more and more rare, others are under the threat of total disappearance. The problem of loss of rare species of plants is a part of a common problem of decrease in a biodiversity (Netsvetayev, 2000: 26).

According to V. E. Flint, "disappearance, extinction of each species is no other than the test for quality of the environment, for the latent defects of our work on preservation the biodiversity, is a crack in integrity of structure of a biodiversity" (Flint, 2002: 286). For preservation of biodiversity in Kazakhstan implementation of measures for an assessment of a state and inventory of objects of a biodiversity, expansion of network of especially protected natural territories and preservation of natural populations of rare species are necessary.

Rare species – the most vulnerable part of biological diversity on Earth. Disappearance of any kind of a plant is catastrophic and irreplaceable loss for the nature. Protection of rare species of plants, as well as preservation of vegetable communities with their participation, are priorities (Borisova, 2015: 64). The most widespread threat for rare species is loss of habitats to which they are adapted. When studying rare species of plants, population level is especially urgent. It is caused by the fact that any kind of plants exists in the nature as independent local population. Researches of rare species of plants at the population level are the most demanded and productive. In recent years researches of genomes of various household - valuable plants and their wild-growing relatives by means of various modern cytogenetic and molecular - biological methods were widely adopted. It gives the chance to better understand genetic features of the studied types and to define their genomic and evolutionary relationship as with wild-growing, and cultural closely related types. The obtained data allow to find purposefully effective ways of selection of the forms enriched with useful genes. However, genomes of not all useful species of plants are well studied.

Steppes of Eurasia are a sad example of anthropogenous pressure of an ecosystem of the whole landscape zone. The special attention on preservation of a gene pool of the environment is deserved by the poorly studied, intensively developed steppe territories.

In botanical-geographical relations, the Aktyubinsk region, one of the most considerable industrial areas of Kazakhstan, is of special interest. In the territory of which the unique steppe communities, cretaceous massifs, relic forest and marsh natural boundaries needing protection of flora have remained (Aipeisova,2011:5). In the territory of the Aktyubinsk floristic district there are sphagnum bogs with a sundew, a cranberry and other boreal types, cretaceous ridges with relic calciphile and other micro refugium in which the most part and relic types have remained. Obligate calciphile of the Aktyubinsk flora of desert and steppe Pliocene relicts are *Anthemis trotzkiana, Linaria cretacea, Silene cretacea, Artemisia salsoloides, Crambe tataria, Capparis herbacea, Matthiola frangans*, and also *Anabasis salsa, Nanophyton erinaceum, Thesium refractum* and other types are carried (Aipeisova, 2012:3). Among them *Anthemis trotzkiana* is not only obligate calciphile, it is first of all a Red Book species which is under the threat of disappearance and demands protection of the habitat. The species is included in the Red List of Kazakhstan (2014) with the status of the II category – a rare species. The species meets single copies, small groups and also is included in the list of rare plants of the European Union (Bilz, 2011:130).

The complex researches of cenopopulation of this species including studying of number, age structure, level of a genetic variety, interpopulation differentiation and the analysis of all received results in the territory of the Aktyubinsk region have not been conducted earlier. The complex research of the current state and biological features of a rare species of *Anthemis trotzkiana* meeting in the Aktyubinsk region requires versatile studying of this look.

Relevance of work is caused by importance of definition of molecular - genetic bases of a genetic variety of rare species of plants at the population level and a lack of methods for optimization of preservation of gene pools of rare and endangered species of plants.

The rare species of *Anthemis trotzkiana* is for the first time found by P. S. Pallas in 1769 and named by Claus in honor of professor of the Kazan university P. Ya. Kornukh Trotsky (1803-1877).

Anthemis trotzkiana is a long-term semi-bush which is from the family *Anthemis* L. of the *Asteraceae*. The *Asteraceae* families include about 1300 species and 25000 types spread during three sub-

families and 17 tribes (Ayad, 2012: 151). The tribe camomile has distribution around the world though taxons are concentrated in Central Asia, the Mediterranean and South Africa (Funk, 2009:171). Some subtribe members are *Ursinniinae, Artemisiinae, Chrysantheminae, Leucantheminae, Anthemidinae, Matricarinae* and some types of *Achillea, Anthemis, Artemisia, Glebionis, Leucanthemum, Matricaria* and *Tripleurospermum* are widespread weeds in northern and southern hemispheres (Oberprieler, 2007: 89). Nevertheless types of the tribe already long time are used as medical herbs in traditional and alternative medicine. Many researches have been conducted on essential oils of tribe taxons (Faik,2016:11576).

Anthemis L. - second-large, in camomile tribe. It includes more than 210 types (Bremer& Humpries, 1993: 71; Bremer, 1994: 112). General geographical range of *Anthemis* L. covers the most part of the Western Eurasia, the Mediterranean and a small part of East Africa. The main center of a variety is in the southwest of Asia where there can be met 150 types from 210 (Ergin, 2011: 85).

In the territory of the CIS one can meet 51 types of the sort *Anthemis* L., and in Kazakhstan - 6 types: *Anthemis trotzkiana* Claus – Camomile Kornukh - Trotskovskaya, A. *candidissima* Willd. ex Spreng. - the C. the whitest, A. *tinctoria* L. - Item tinctorial, A. *cotula* L. - C. dog, A. *microcephala* (Schrenk) B. Fedtsch. - C. capitellate, A. *deserticola* Krasch. & M. Pop. - C. desert (Flora of Kazakhstan, 1966 : 654).

Many types of the sort Anthemis L. are characterized as rare, endemic and being under the threat of disappearance (Uzel 2004 : 151). For example, Anthemis pestalozzae Boiss. (Asteraceae) is an endemic sort, living on volcanic, limestones and hilly slopes located in the south Anatoly. Both these endemic and ornamental plants at the local level the industry were left by negative impact on populations of plants (Arslan,2002: 411), evolutionary history and eco - climatic differentiation of the sort Anthemis L. is studied. (Compositae, Anthemidaceae) in vicinities Mediterranean (Lo Presti,2009: 1313). And also types of the sort Anthemis L. are widely used in pharmaceutics, cosmetics and the food industry. Flowers of a sort have use in quality antiseptics and curative herbs which main components are natural flavonoids and essential oils (Vaverkova,2007: 283). Vida Anthemis L., which the containing essential oils have extracts antimicrobic activity. (Cigdem,2016: 55) some types of the sort Anthemis L. are used in digestion treatment - an intestinal path spazmolitichesky, anti-inflammatory and as sedative. In Europe extracts, infusions and teas are widely used in anti-inflammatory, antibacterial, digestive- spasmolytic and sedative ways . In traditional medicine are applied to alleviate pain and irritation, tidy wounds and ulcers, and also treatment of the irradiated injuries of skin, treatment of cystitis and tooth illnesses (Grace,2002: 183). Abdul Gafor the to scientific work reconsiders the sort Anthemis L. (Compoistae - Anthemideae) meeting in Arabian Peninsula which includes 19 types which are relating to the sections Odontostephana, Maruta, Anthemis, and Rascheyana including A. tenuicarpa, being a new sort for the Saudi Arabia (Abdul,2010: 79).

The variety and value of types belonging to the sort Anthemis L. it was described above, however it should be noted that there is a set of not resolved systematic and taxonomical questions. When studying systematic, floristic and biogeographical researches there is often used a herbarium. As the herbarium is an archive of valuable scientific information which has multipurpose value, and a herbarial sample - the document confirming existence of a type in the concrete place in certain time (Bezrodnova,2015:16). The main objective of the Herbarium is storage of a reference material necessary for definition of plants and their classification.The herbarial fund of Institute of botany and phytointroduction of Ministry of Education and Science of the Republic of Kazakhstan is included into the list of the largest scientific botanical collections of the CIS of national value, has the AA international index. The herbarium represents the only thing in the Republic storage of botanical collections where the richest flora of Kazakhstan is most fully presented. Now the Herbarium is at the department of biodiversity and bioresources of al-Farabi Kazakh National University and department of biology of K. Zhubanov Aktyubinsk regional state university and it serves the purposes, first of all, of improvement of students' education quality of faculty and has educational - methodical value. On the basis of materials of the Herbarium there are also carried out theses on disciplines of botany and geobotany.

The purpose of this work is careful viewing of specific structure of the sort *Anthemis* L., stored in the herbarial funds of Institute of botany and phytointroduction of MES of RK, Al-Farabi Kazakh National University and K. Zhubanov Aktyubinsk regional state university.

For achievement of goals it is necessary to solve the following problems:

– to carefully observe herbarial samples of the sort *Anthemis* L. and to allocate types meeting in Kazakhstan;

– to make the abstract of types of the sort *An-*

themis L., meeting in the territory of Kazakhstan by means of critical viewing of the herbarial material which is stored in the herbarial funds;

– to specify location of a rare species of *Anthemis trotzkiana* in the research territory (The Aktyubinsk region).

Materials and methods

In the course of the forwarding research there was used reconnaissance traversing method. Collecting material was made on cretaceous breaks and limestones in August, 2016 in the Aktyubinsk region. GPS of coordinate are noted (N: 49 022' 8", E:54 0 31 '23") collecting points of *Anthemis trotzkiana*(Fig. 1-2).

The morphological-geographical method was applied to carrying out the systematic analysis. During determination of the type there were

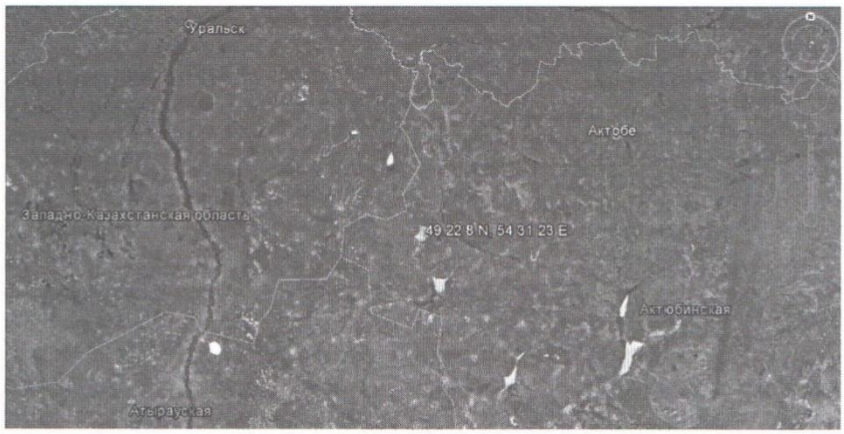

Figure 1 – GPS collecting point coordinates of Anthemis trotzkiana

Figure 2 – Collection point of Anthemis trotzkiana

considered the main morphological features in a blossoming phase. There is a number of the morphological features distinguishing a camomile from other types of the *Anthemis* L. The main characteristic sign are that *Anthemis trotzkiana* - a long-term semi-bush; a stalk at the basis is stiffening, ascending, simple or low-branchy; leaves twice-cut, young white-tomentose; baskets are single; flowers diverse: regional pistillate with a wide lingular yellow nimbus, central monoecious with a tubular nimbus; seed pots are obypyramidal, 4-faced, cop is short, in the form of a cogged bit.

And also materials of herbarial funds have

been studied in detail: Institute of botany and phytointroduction of MES of RK, Al-Farabi Kazakh National University, K. Zhubanov Aktyubinsk regional state university and their own collecting.

By drawing up the abstract of types of the sort *Anthemis* L., and also by drawing up systematic and geographical analyses the following main references have been used: "Flora of Kazakhstan" (1966) where processing of a sort was carried out by A. O. Orazova, in "Flora of the SSSR" (1961) An. A. Fedorov, in "The illustrated determinant of plants of Kazakhstan" (1972) Myrzakulov P.M., in "The hand book of Central Asian plants" (1993) Kamelin R. V., Kovalevskaya S. S.

In the course of work in herbarial fund the data, which are contained in the herbarial, labels where a surname of collectors, date of collecting, a geographical and administrative arrangement of point were specified without change.

In work Latin names of types of the sort *Anthemis* L. have been verified according to S. K. Cherepanov's reports (1995), and are given the Kazakh name of plants according to S. A. Arystangaliyev, E.R.Ramazanov (1977).

Results and discussion

Among the types which are found in Kazakhstan by results of own collecting the exact location of a rare species of *Anthemis trotzkiana* is noted (N: 49 022' 8", E:54 0 31 '23") Population was at the height of 144 m over level. The Aktyubinsk region, Uilsky district, on chalk of the mountains Akshatau in 3 km from the settlement of Akshatau which are confirmed by the herbarial data which are brought together in 2013 by Aipeisova S.A. (Aipeisova, 2013: 312). The type is also confirmed by the research associate of Institute of botany and a phytointroduction by Danilov M. P., and professor of department of botany of the Kemerovo state university and the director of the Kuzbass botanical garden IEC Siberian Branch of the Russian Academy of Science and Doctor of Biological Science A. N. Kupriyanov.

On herbarial samples of KazNU there have been studied 3 types (*A.trotzkiana, A. tinctoria., A. microcephala*), growing in the territory of Kazakhstan, from three samples of a type of *Anthemis trotzkiana* one of the sample has been redefined by us as it is not confirmed according to morphological data and the location does not correspond according to references. The label has been corrected on *Anthemis subtinctoria* L., on consultation of the candidate of Biological Sciences, associate professor, leading florist of the department. A.A. Ametov and and also has been confirmed by A. N. Kupriyanov.

In funds of "Institute of botany and a phytointroduction" of MES of RK and department of a biodiversity and bioresources at KazNU among the herbarial samples of the sort *Anthemis* L. herbarial samples of outstanding scientists, such as N. V. Pavlov, M. G. Popov and P. P. Polyakova and herbarial samples of scientists - botanists as Z.V.Kubanskaya, M. S. Baytenov, A. Gamayunova, V. P. Goloskokov are of special value.

In herbarial fund of "Institute of botany and a phytointroduction" of MES of RK in 1962 - 1963 years several types of the sort Anthemis L. It is redefined by A. O. Orazova. Type of Anthemis arvensis L. = Anthemis candidissima Wild., Maruta microcephala Schrenk. = Anthemis microcephala Schrenk, Anthemis tinctoria L. = Anthemis subtinctoria Dobrocz.

At the Institute of botany and phytointroduction there has been observed 57 herbarial leaves of the sort Anthemis L., where 13 types have been noted: Anthemis arvensis L., Anthemis austriaca Jacq., Anthemis altissima L., Anthemis candidissima Willd. ex Spreng., Anthemis cotula., Anthemishirtella C. Winkl., Anthemismicrocephala (Schrenk) B. Fedtsch., Anthemis ruthenica M. Bieb. Anthemis rigescens Willd., Anthemis sosnovskyana Fed., Anthemis subtinctoria Dobrocz., Anthemis tinctoria L., Anthemis trotzkiana Claus.

Abstract of types of the sort Anthemis L. met in the territory of Kazakhstan

5 types from 6 met in the territory of Kazakhstan are given in the abstract. The abstract of types contains the following information: the Latin, Russian, Kazakh name, the general area, and distribution within the explored territory, data on a vital form, ecological habitats and terms of blossoming and fructification.

Section 1.RumataFed.

Section type - A. Saportana Alb.

Row 3: Fruticulosae Fed.

1. Anthemis trotzkiana Claus - Delect. sem. Dorpat. (1847)3, in obs.–Camomile Kornukh-Trotskovskaya - Карнаух өгізкөз(Fig.3)

H.,Grows on cretaceous breaks and limestones.

BlossomingVII -VIII, fructification VIII- IX.

Collection point:Aktyubinsky. Bass. river of Hobda (49-510 NL, 25 - 270 EL from Pulk.), the mountain Bes-tau. Cretaceous exit is at top. 31. V II. 1926, Sobr. M. M. Ilyin and M. N. Avramchik, 2 copies (A, B); Aktyubinsk Western Mr. Magadzhanovek val. On cretaceous. 24. VI.

1927, Leg. A. Dergageva, 2 copies (C, D); Zap. Kazakhst. the Region, the valley of the Urals River, cretaceous exit is on the coast having lived Burli. 9. I X.1947 of Leg., Teste: N. V. Pavlov, 2 copies (E, F); The Ural Region Burlinsky district to / з Lenin's Testament. Dark - chestnut undeveloped, sublene. 28. June, 1978, Leg.: Gubanova, Teste: Lapshina M. S. (G); The 150th km.eastern Aktyubinsk on cretaceous hills. 21. VI. 1978 of Sobr. Baytenov M. S. Opr. 1990, Kudabayeva G. M. (H); Aktyubinsk Region, Hobdinsky area, Mr. Bestau. mountain top (cretaceous). Sobr. and S. Aipeisova. 31.05.2004 (I); Wil. area. 5 km. from Wil, city Karatobe, cretaceous is high., Sobr. S. Aipeisova and Not Ling N. V. 11.07.2005 (J); in 3 km.s. Akshatau, Mr. Akshatau, slope. Sobr. and S. Aipeisova. 13.07.2005 (K); Aktyubinsk Region, Wil. the area in 3 km.s. Akshatau, Mr. Akshatau, on cretaceous slope. (N 51 °41'38", E 54 °01'22"), collected. K. S. Izbastina; Opr.: A. A. Ametov, K. S. Izbastina 26.08. 2016 (L).

Section 2.Anthemis

Section type – sortlectotype

Row 1: Arvenses Fed.

2.Anthemis candidissima Willd.ExSpreng. Syst. nat.III(1826)–Camomile beleishaya - Аппақ өгізкөз(Fig.4)

H., Grows on coast of streams in desert areas.

Blossoming and fructification V-VI.

Collection point:The Jambyl Region, between the village of Chaldovar and Merke, pasture., 04. V.1952г., Leg.: A. Gamayunova., Teste: N. V. Pavlov (A); The Jambyl Region, on a stream at the village of Chaldovar., 25. Vi.1952g., Leg., Teste: A. Gamayunova., 1962 of Teste: A. Orazova (B); The Jambyl Region, between the village of Chaldovar and Merke, pasture., 25. V.1952г., Leg. O. Lushka. Teste: N. V. Pavlov, 1962. Teste: A. Orazova (C).

Section 3. Cota (J. Gay ex Guss.)Rupr.

Sectiontype- Anthemis tinctoria L.

Row 1: TinctoriaeFed.

3. Anthemis tinctoria L. - Sp. pl. (1753) 896. – Camomile tinctorial - Бояу өгізкөз (Fig.5)

H., Grows on steppes, in fields, on deposits.

Blossoming and fructification VI -VIII.

Collection point: Camomile tinctorial Ridder pine forest at. 20. 06.1933 V. Evsiyev (A); Altai, Ridder. Vicinity of the Botanical garden. Sokolny sopsa. 7/10/1936 of Leg. Kuban Z.V. Teste. Goloskokov (B); East Kazakhstan Kirovsky district. K-z of Budenny crops of wheat, 30.07.1937 of Leg.:mizulevsky. Teste: Kornilov (C); East Kazakhstan Kirovsky district. K-z "the Red Dawn" crops of wheat of 09.08.1937 of Sobr. Bryuzgina. Opr. Kornilov. (D); In - R regional, Ridder the district, S. Cherelmaniye right coast. r. Ul protected 7/11/1937 city Alt.Bot. RFNN. (E); North Kazakhstan Region Shortandinskaya e / x experimental station steppe. 01:07. 1947 of Sobr. and Opr. Solomchenko A. Z. (F); It is southern - Kazakhstan regional, Bostandyk. East. Ugalsky, The gorge Boguchal - Sai. 1200 m 1. V II. 1953, Leg. V. Pavlov. Teste: N. V. Pavlov. 2 copies (G); Territory of botanical garden AN Kaz. SSR. 2. Y III. 1962, Leg., Teste. P. Myrzakulov (H); Kalbinskiykh rebit. Gore Medvedk. 18. V III. 1971, Opr. Stepanova (K); East - the Kazakhstan Region Leninogorskiyprom. area. Ridder - the Sokolsky field. On June 15, 1989 SOBR. Popova. Opr. Kazenas. (Kazgiprozem) (L).

Section 4.Maruta (Cass.) Boiss.

Section type- Anthemis cotula L.

Row 1: Cotulae Fed.

4. Anthemis cotula L. - Sp. pl. (1753) 894.-Camomile dog - Ит өгізкөз (Fig.6)

H.,Grows on weed places.

BlossomingV -VI, fructificationVII- VIII.

Collection point:West. Tianshan. Verkhovayar. Pskemaukishl. pokem. Vogorade. 8. YIII. 1936, Leg. A. Dmitriyeva(A); Big Alma - Aty gorge next to the turn. 4. X. 1962, Leg: A. I. Povrkova. Teste: A. Orazova (B).

Row 3: Microcephalae Fed.

5.Anthemis microcephala(Schrenk) B.Fedtsch. – in Turkest. (1915)–Camomilecapitellate- Майдабас өгізкөз(Fig.7)

H.,Grows on sandy deserts and saline soils.

Blossoming and fructification VI.

Collection point:Kazakhstan Ural federal district. Low-Talas district. Sorniye in crops of the Kenaf next to the Talas River. Uch-Aral Sea. 15. VI. 30 g, SOBR. E. Hando (A); Kazakhstan-Ural district. Low- Talas district. Uch-Aral Sea, meadows., 10. VI. 30 g, OPR. M. Pop. (B); Kazakhstan Ural federal district. Low- Talas district. Uch-Aral Sea. Uroshitsedzhelanda. Meadow. SOBR. Hando, 19. V. 30 g, OPR M. Pop. (C); Kazakhstan Syrdariya district. The river of the Expert at a confluence. lakeBiyli-Kul. 25/V. 1930, SOBR. P. A. Volkova (D); The Lake Biymo - a sack. On it is gray 12/Vi.1934g., Leg.Ponamoreva (E); Jambyl regional, meadows on river of Chu near the village of Alekseyevka. 15.VII. 1941, Leg. S A. Nikitin. Teste. P. Polyakov. 2 copies (**F, G**); Taldyuzen. On the coast of river of Sark-

roma. 10.VIII. 1941, Collected: S. A. Nikitin, M. K. Deulina (**H**); The Almaty Region of Chu - Iliyskiye a horn, xp. Koysharylgan, on a stream. 20.VI. 1952, Leg. M. Baytenov. Teste. N. V. Pavlov (**I**); East coast of the lake Biblikul (Dzhambulsky Region). On saline a meadow zapadinok 22.V. 1963 of Leg: V. P. Goloskokov. Teste: V. P. Goloskokov; Dzhambulsky Region Moyyunkumsky district. local river of Chu. 29.06. 1967 of Leglyusyik (**K**); Dzhambulsky Region. Flood plain of river of Chu. Furmanovsky floods hospital. 29.06. 1968 of Leg., Teste: Suyrimbetova (**L**).

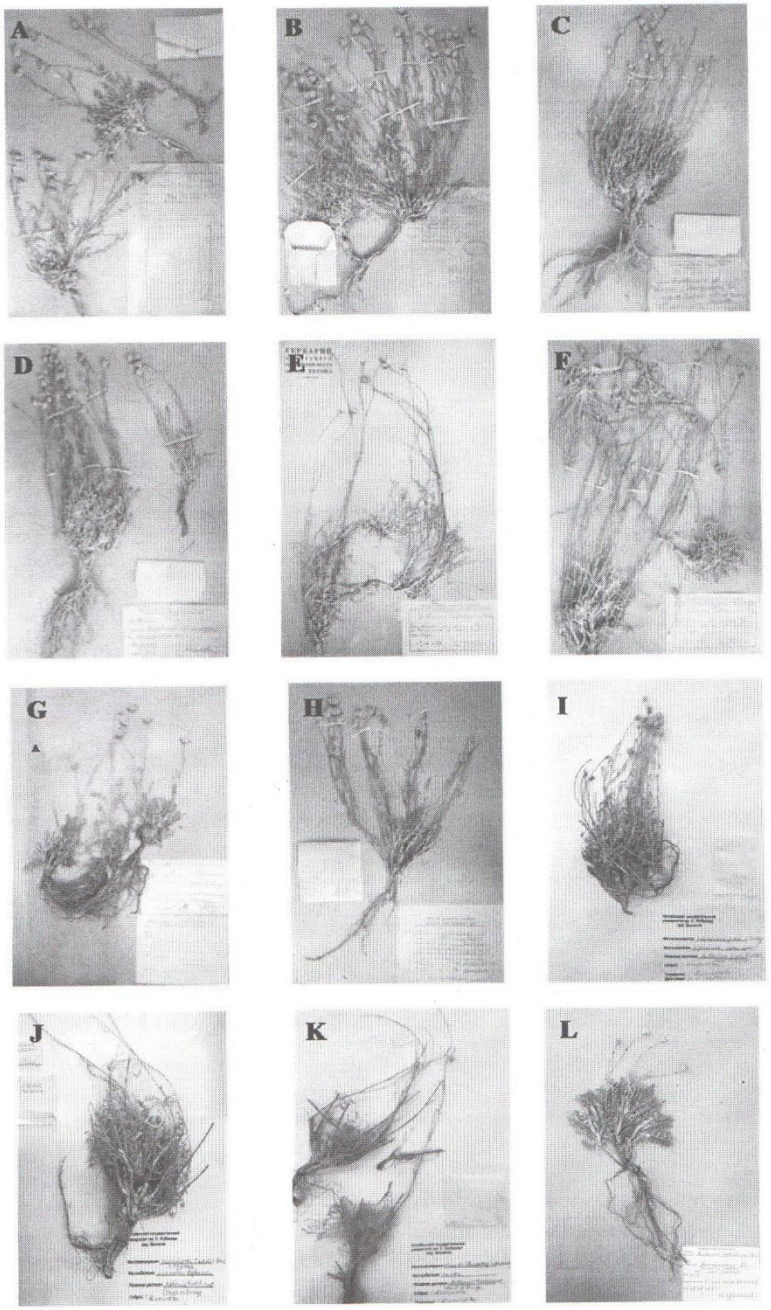

Figure 3 – Anthemis trotzkiana Claus

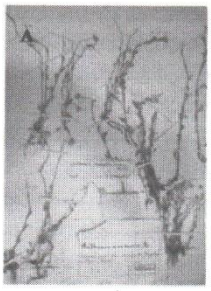
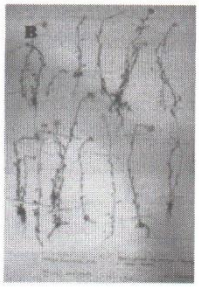
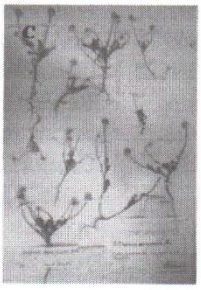

Figure 4 – Anthemis candidissima Willd. ex Spreng.

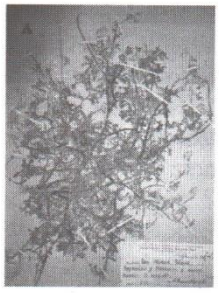


Figure 6 – Anthemis cotula L.

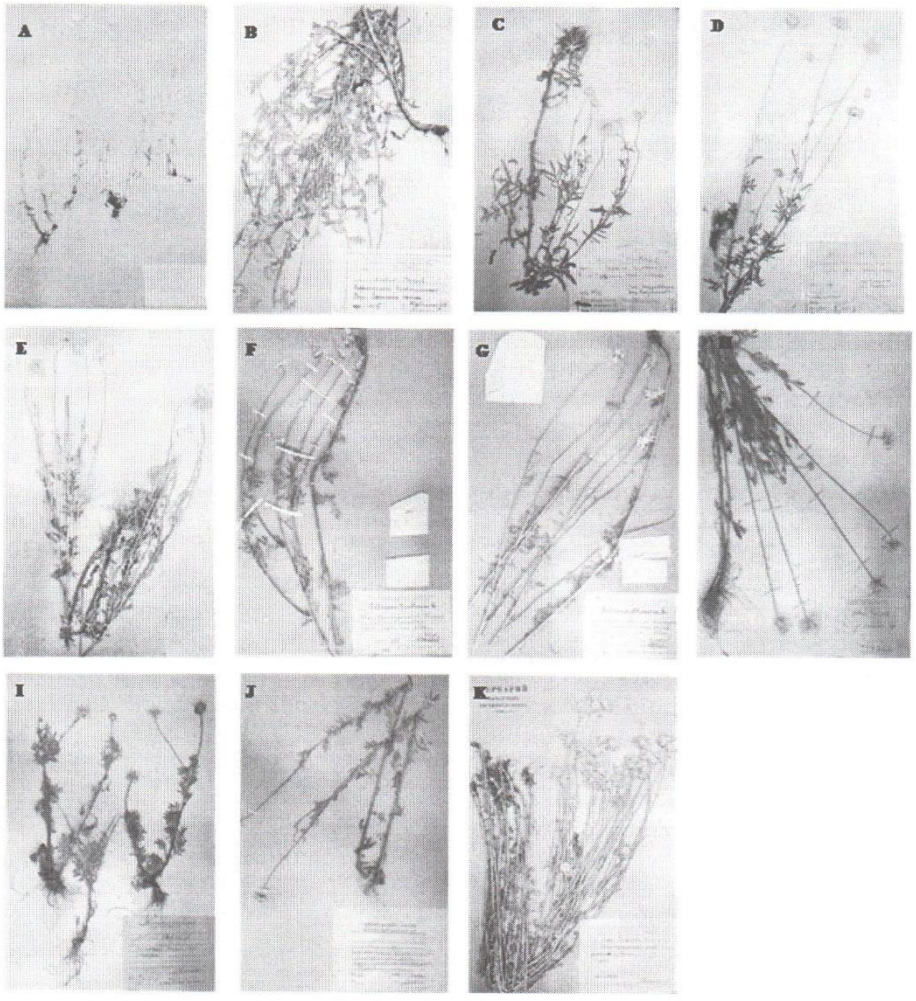

Figure 5 – Anthemis tinctoria L.

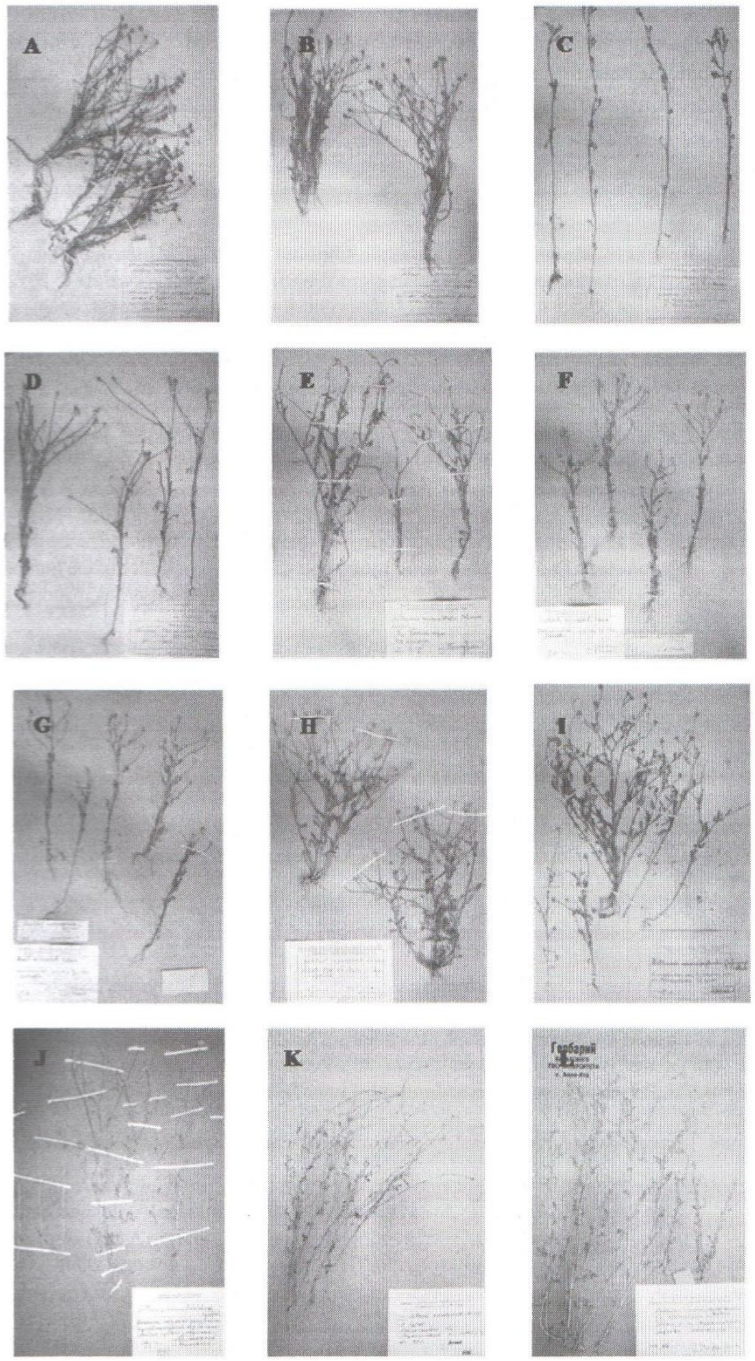

Figure 7 – Anthemis microcephala (Schrenk) B. Fedtsch

Conclusion

1 According to the results of careful observation of 74 herbarial samples of the sort *Anthemis* L., 6 types of the sort *Anthemis* L. are allocated in Kazakhstan. – *A. trotzkiana, A. candidissima, A. tinctoria, A. cotula, A. microcephala, A. deserticola.* From them the location of 5 types is noted in herbarial fund, except a type of *A. deserticola.*

2 The abstract of types of the sort *Anthemis* L. is made meeting in the territory of Kazakhstan by means of critical observation of the herbarial material

which is stored in the herbarial funds of Institute of botany and phytointroduction of MES of RK, Al-Farabi Kazakh National University, K. Zhubanov Aktyubinsk regional state university.

3 For the research territory (The Aktyubinsk region) types of the sort *Anthemis* L. are revealed, also the exact location of a rare species of *Anthemis trotzkiana* is noted.

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