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## STUDY OF POPULATIONS OF *Urtica dioica* L. IN THE MOUNTAIN AREAS OF NAKHCHIVAN AUTONOMOUS REPUBLIC

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## ИЗУЧЕНИЕ ПОПУЛЯЦИЙ *Urtica dioica* L. В ГОРНОЙ МЕСТНОСТИ НАХЧИВАНСКОЙ АВТОНОМНОЙ РЕСПУБЛИКИ

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*Abstract.* The distribution, ontogenetic structure, age and growth structure of hay meadow populations, productivity in different periods of ontogenesis of all populations of *Urtica dioica* L. are considered. Populations of this species are identified and studied. *Urtica dioica* is a common plant in the highlands of the Nakhchivan Autonomous Republic. An assessment of 10 populations was carried out, the data were presented in the form of tables and graphs. The structure of ontogenesis was studied based on the population method. It has been established that this plant is distributed as part of plant groups in the herbaceous, shrub and forest vegetation of the Sharur, Babek, Kengerli, Shahbuz and Ordubad administrative regions of the Nakhchivan Autonomous Republic.

*Аннотация.* Рассмотрены распространение, онтогенетическая структура, возрастная и ростовая структура сенокосных популяций, продуктивность в разные периоды онтогенеза всех популяций *Urtica dioica* L. Выявлены и исследованы популяции данного вида. *Urtica dioica* — обычное растение в высокогорье Нахчыванской Автономной Республики. Проведена оценка 10 популяций, данные представлены в виде таблиц и графиков. На основе популяционного метода изучена структура онтогенеза. Установлено, что это растение распространено в составе групп растений в травянистой, кустарниковой и лесной растительности Шарурского, Бабекского, Кенгерлинского, Шахбузского и Ордубадского административных районов Нахчыванской Автономной Республики.

*Keywords:* populations, forage plants, ontogenesis, phytocenosis, hay meadows, area, productivity, growth phases.

*Ключевые слова:* популяции, кормовые растения, онтогенез, фитоценозы, сенокосы, площадь, продуктивность, фазы роста.

In the course of the research, expeditions and field studies were conducted in the territory of the Gunnut-Kapichik physical-geographical region and it was found that 2 species of *Urtica* L. genus — Nettles belonging to the Urticaceae family — Nettle Family are widespread: *Urtica dioica* L. — Big-sting Nettle and *Urtica urens* L. — Annual Nettle. The distribution ranges and bioecological features of species of *U. dioica* was studied.

*U. dioica* is a perennial plant, considered an important medicinal, food and fodder plant and is of great importance in folk medicine [1-3, 9, 15].

This plant is widely used in Azerbaijan, so the current state of populations and reserves of the plant was studied.

The studies were conducted in the spring and fall season, in all phases. The role of *U. dioica* in the type of vegetation and its phytocoenological structure, it was established that in the flora of the Gunnut-Kapyjik physical-geographical region this plant belongs to the ecological group of mesophytes and is one of the elements of wallow-meadow and water meadow. During the expeditions it was established that this plant is distributed as a part of plant groups in herbaceous, shrub and forest vegetation of Sharur, Babek, Kengerli, Shahbuz and Ordubad administrative districts of Nakhchivan Autonomous Republic [11-13].

*U. dioica* is more frequently found in Kyulus, Kechili and Selasuz villages of Shahbuz district, Buzgov and Yeniell villages of Babek district, Akhura and Khavush villages of Sharur district, Byuyukduz of Kengerli district, in grass formations and wet meadows of all Upper mountainous areas of Ordubad district [8, 14].

The ontogeny of the species of *U. dioica* and the developmental stages of plant individuals were fully determined. The ontogenetic status of plants was determined by comparison criteria by recording at periods J, Im, V, g<sub>1</sub>, g<sub>2</sub>, g<sub>3</sub>, cc, c. The results were obtained in plots located in plots located in different phytocenosis by sequential and scattered methods. Based on the population study method, the structure of their ontogenesis was studied on materials collected from different phases of ontogenesis (Table 1, Figure) [4-6].

Table 1

STRUCTURE OF ONTOGENESIS OF *Urtica dioica* SPECIES

Ontogenetic period	Coenopopulations										Σ	%
	1	2	3	4	5	6	7	8	9	10		
J	3	6	0	2	9	11	4	5	0	7	47	3.46
Im	2	3	7	4	11	11	8	5	5	23	79	5.82
V	6	17	8	16	17	18	13	11	7	29	142	10.46
g <sub>1</sub>	11	23	11	12	45	32	23	37	32	34	260	19.15
g <sub>2</sub>	17	19	13	19	39	36	25	39	56	46	309	22.77
g <sub>3</sub>	14	32	16	23	54	43	28	46	59	45	360	26.52
c, cc	3	11	23	27	21	0	0	11	43	21	160	11.79
Σ	56	111	78	103	196	151	101	154	202	215	1357	100

As can be seen from the table and diagram, all populations are characterized by a predominantly generative stage of ontogenesis. In some populations, e.g. Juvenile individuals are not found in 3 and 9, and even in these populations the number of senile and subsenile individuals is high (23 in 3, 43 in 9, etc.). At the same time, the dynamics of abundance in phases J, Im and V (45-142) is very low compared to g<sub>1</sub>, g<sub>2</sub> and g<sub>3</sub> (260-360), which indicates a decrease in the dynamics of abundance in *U. dioica* species populations and range narrowing in the near future.

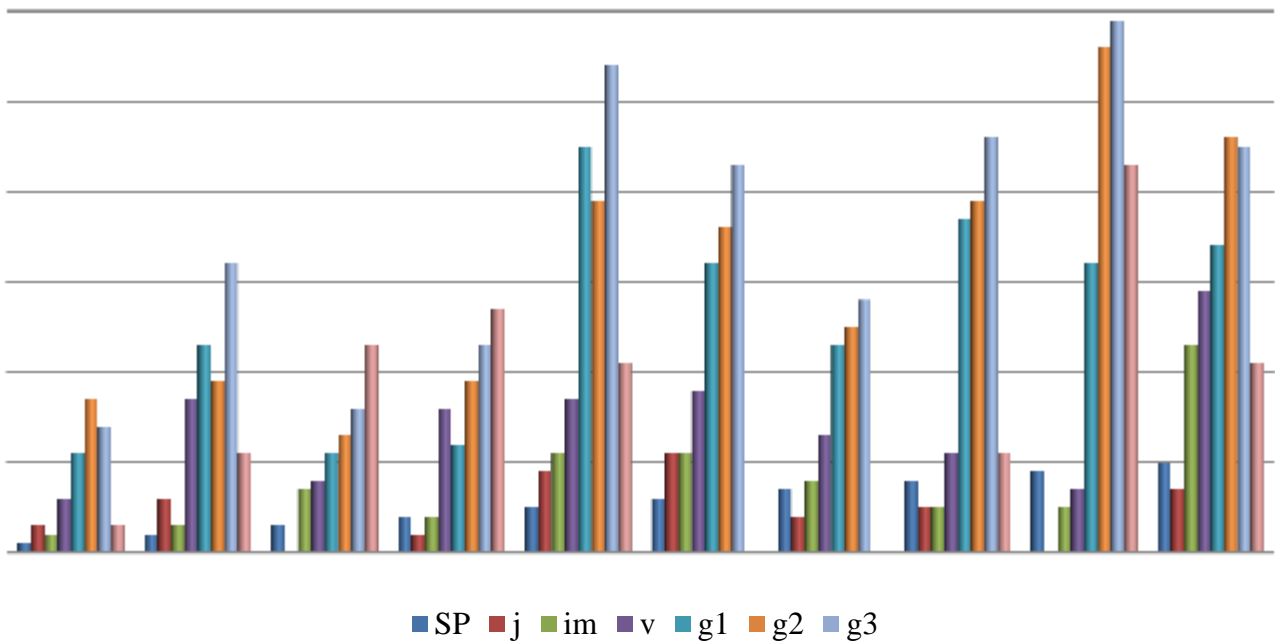


Figure. Ontogenetic status of *U. dioica* species in 10 populations

We calculated age and effective ontogenesis indices of hay meadow populations of *U. dioica* species which are presented in the Table 2 below.

Table 2  
 AGE (GROWTH) STRUCTURE OF *Urtica dioica* HAY MEADOW POPULATIONS

SP	SP type	Growth phases of ontogenesis, in % of total number						Indexes		
		J	Im	V	g <sub>1</sub>	g <sub>2</sub>	g <sub>3</sub>	cc, c	$\Delta$	$\Omega$
1	Mature	8.4	12.3	9.8	27.20	26.0	33,3	7.7	0.58	0.42
2		4.5	20.9	19.1	21.27	33.1	17,6	5.6	0.53	0.61
8		6.2	10.4	16.7	16.70	18.8	31,8	25.0	0.44	0.54
3	ripe	0	6.0	6.7	12.70	13.6	19.0	18.2	0.43	0.22
9		0	20.9	12.1	22.30	11.6	6.2	11.4	0.28	0.21
4	transition	50.2	20.5	11.0	8.60	6.0	2.2	1.5	0.28	0.22
5		63.8	13.7	6.9	4.20	7.8	3.6	2.3	0.29	0.21
10		14.1	10.0	26.2	19.00	11.7	12.1	6.9	0.27	0.46
6	young	41.1	24.6	20.1	4.50	6.0	2.2	0.0	0.08	0.71
7		18.9	64.6	0.9	4.60	7.8	3.2	0.0	0.09	0.77

As can be seen from the Table 2, the populations predominantly contain all groups of plant ontogenesis, but in populations 7-8 no juvenile phase was found, and in populations 6 and 7 no individuals belonging to s and ss phases were found coenopopulations, these are young populations and have high performance indices ( $\omega=0.71$ ; 0.77). Coenopopulations 1, 2, 8 are fully mature ( $\omega=0.44$ ; 0.53; 0.58).

Despite higher age values, population efficiency is also high ( $\omega=0.42$ ; 0.54; 0.61) because all phases of ontogenesis are detected. In transitional hay meadow populations (4, 5, 10), the rates of individuals belonging to periods J, Im and V (10-50.2%) are higher than those belonging to the generative period (2.2-12.1%), but individuals are also more. belonging to the senescent period

(1.5-6.9%). Therefore, the population efficiency is not so high (0.21-0.46). However, it is obvious that in the future the population will continue to grow, and its efficiency will increase.

By studying performance, it is possible to obtain complete information on plant resources and determine the economic importance of hay meadow populations. The study of hay meadow populations alone is not sufficient in this area (Table 3).

Table 3

*U. dioica* PERFORMANCE AT DIFFERENT STAGES  
 OF ONTOGENESIS (cwt/ha, raw weight)

sp.	Study area	Period of rosettes	Mature plant
1	Shakhbuz dist, outskirts of the village of Kechili	166.12±16.8	178.00±14.67
2	Shahbuz dist., outskirts of the village of Kulyus	95.78±10.60	110.40±16.58
3	Babek dist., outskirts of Buzgov village	310.1±40.9	421.1±40.2
4	Babek dist., outskirts of Yenyol village	113.6±11.33	124.6±21.45
5	Sharur dist., outskirts of Ahura village	141.30±8.44	268.3±25.3
6	Sharur dist., outskirts of Havush village	167.5±21.5	196.45±19.9
7	Kengerli distr., Buyukduz village territory	262.1±28.9	340.00±20.10
8	Ordubad distr., Nus-nus village	115.4±11.33	190.00±15.38
9	Ordubad distr., Unus village	98.00±2.18	154.00±13.19
10	Ordubad distr., Pazmary village	168.00±10.00	255.20±23.30
Total		1522.5	2238.55

Since the rosette leaves of the study plant are nutritionally important, the fully matured plant up to the time of budding is used for medicinal purposes and its reserves during the phases of full maturity are studied.

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