ГЕНЕЗИС ПОЧВ

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AGROCHEMICAL AND PHYSICOCHEMICAL PROPERTIES OF THE SOIL OF VIRGIN DARK SEROZEMS OF THE AKTAU MOUNTAIN RANGE OF NURATA DISTRICT OF NAVOI REGION

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Abstract. In this article, we present the main geomorphological indicators of virgin dark serozems common on the slopes of the Aktau mountain range of the Nurata mountains. The relief of the territory of the studied soils is formed on mountain slopes with a dissected relief. The lands of these territories are used for grazing. Soil-forming rocks are alluvial-deluvial, rubble deposits formed on the destruction products of various bedrocks. Dark serozems are common in a temperate, humid climate, characteristic of the upper zones of the serozem belt. A significant annual input of organic substances into the soil determines the increased humus content of the soils, the greater thickness of the humus horizons. Increased moisture determines a deeper washout of carbonates. In the profile of virgin dark serozems, the following genetic horizons are distinguished: a humus-accumulative horizon of dark gray color, reaching a thickness of 16-20 cm with good turfiness; the structure of the upper horizons is plastic, turning into lumpy. The horizon B is 40 to 80 cm thick and contains insect chambers covered with limescale. The coloration is lighter with a brownish tint. An important feature of the soils of the belt of dark gray soils is their skeletal structure. The degree of skeletonity is different and depends on the depth of gravel deposits. The maximum hygroscopicity in virgin dark gray soils ranges from 2.746 to 4.819 % of the weight of absolutely dry soil. Fluctuations in the content of maximum hygroscopicity depend on the amount and composition of absorbed bases and soluble salts in the soil. The thickness of the humus horizon in virgin dark gray soils is 60-90 cm, the maximum content of humus is on the upper horizon at 6-7 cm. Its amount in the arable horizon is 2.66-3.34 %. The content of mobile forms of phosphorus in the soil - 8.5-9.0 mg/kg of soil, the availability of exchangeable potassium is medium and high - 276.9-361.2 mg/kg. Dark serozems are richer in colloid-silt fractions, and organic colloids play a more significant role in their composition than in typical and light serozems. Therefore, their absorption capacity is higher.

Key words: eluvial, deluvial and gravelly rocks, belt, humus, virgin, skeletonity, colloidal silt, fraction, capacity, hygroscopicity.

INTRODUCTION

Dark serozems can be found in the foothills, on the lower slopes of mountains, on the piedmont slopes and in the valleys of intermountain rivers. The altitude boundaries of their distribution range from 800 to 1200-1400 m above sea level. By exploring on virgin dark serozems, we studied their chemical composition, mechanical composition and nutrients. The determination of these indicators contributed to a more complete assessment of the mechanical composition, the content of nutrients and humus in the studied soils, and to provide recommendations for their more rational use. The study of agrochemical and physicochemical properties of virgin dark serozems is intended to clarify changes in the soil cover, in the content of nutrients and other soil properties for the qualitative characteristics of the land fund of the region, the implementation of measures to use land and increase their productive capacity, as well as to substantiate schemes for integrated use protection of land and water resources. As the object of research was selected virgin dark serozems common on the slopes of the Aktau Mountain range. This research focuses on agrophysical, agrochemical data and soil

fertility, mechanical composition, capacity and content of the main elements. Scientific novelty of research, in particular, changes in the agrophysical, agrochemical properties of soils. The aim of the study was to determine the agrophysical, agrochemical properties of the target dark serozems identified on the slopes of the Aktau Mountain range, and to evaluate the characteristics of fertility and their use.

MATERIALS AND METHODS

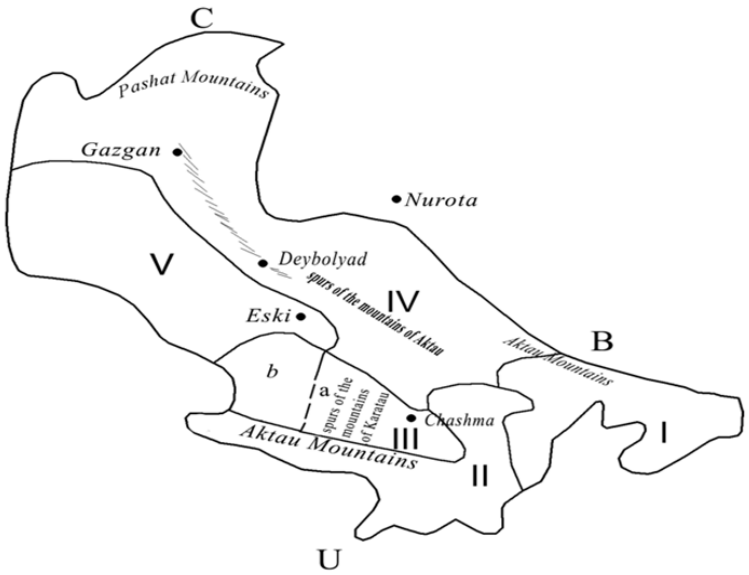
The studies were carried out according to standard methods generally accepted in soil science in field, laboratory and office conditions, chemical analyzes were carried out in a laboratory with ISO international certification in the field of soil science, in particular, soil sampling, storage and laboratory analyzes were carried out on the basis of 17.4.3.01–83 the Interstate GOST standard. The study of the properties of soils with a degraded topsoil based on 17.4.2.02–83 the Interstate Standard GOST. Instructions for the method “Soils. Definition of organic matter." Determination of organic matter by the Tyurin method" GOST.26213-91. Methods for laboratory determination of granulometric microaggregate composition of OzDSt 817-97. Soils. Determination of mobile compounds of phosphorus and potassium by the Machigin method in the modification of TsINAO. GOST. 26205-912. The content of calcium and magnesium in soils based on the Interstate standard GOST 26428-85. Express - method of content, water extract, humus according to GOST 26213-91. Methods of agrochemical analyzes of soils and plants of Central Asia (5th supplemented edition) [1].

RESULTS AND DISCUSSION

Geomorphology, relief and grounds. A large area of dark serozem territory can be found between the Nurantau and Aktau ridges in the intermountain pit. The altitude of the territory fluctuates between 800 and 900 meters above sea level. Here are some geomorphological regions to be distinguished. (figure 1).

1. Region of medium and low mountains
2. Area of dissected foothills
3. Piedmont proluvial plain
4. Kalamajarsay Valley
5. Region of hilly-ridged plains

The first region of medium and low mountains in the south of the study area is confined to the mountains of Bakhiltau, Kyzyl, Aktau, Koshdergen. These mountains are part of the South Nurata mountain range. The absolute heights of the southern part of the mountains are in the range of 900-1994 m above sea level. In parallel with the Nurata Mountains, the Aktau Mountains, with a length up to 100 m, break up at an altitude of 1400 m. All these are characterized by a ravine-beam network and a series of mountain streams [2]. The slopes of the Aktau Mountain range within the farm face north and south. The northern slopes are steep with numerous outcrops of rocky outcrops and extensive and stony talus. Southern slopes with more gentle slopes, but also with dissected relief. The steepness of the slopes is 8-200, in some places even more degrees. The length of the slopes varies from 150 to 600-800 m. Some streams have steep rocky slopes. In the mountainous part, due to greater moisture, the slopes of the streams are covered with diverse and abundant vegetation. The average design vegetation coverage is 70-75 %. The main plants are: sedge (Carex), viviparous bulbous bluegrass (Poa bulbosa), mugworts (Artemisia), less often almonds, which are usually confined to steep and rocky places. There are various plants in the region that grow continuously as an admixture among ephemeroids and wormwoods, including Malcolmia, Papaver pavoninum, Ziziphora, Capparis spinosa, Rhaponticum repens and leek. Over 50 species have been identified so far in the area. In terms of the harmful and inedible plants for animals exist in the area including Sophora pachycarpa, Peganum, Eremurus plant, and among poisonous plants, trichodesma incanum [3].



Scheme of geomorphological regions of the «Gazgan» massif

I - Medium mountains of the Aktau
II - Low mountains of the Karatau
III - Foothill slope of the Karatau mountains:
a) hilly - ridge plain on loess
b) strongly dissected by rivers and ravines on gravelly proluvial deposits
IV - Piedmont sloping plain of low mountain Aktau, Pashat and their slopes
V - Piedmont broad - wavy plain

Figure 1 – Scheme of geomorphological regions of the «Gazgan» massif

Vegetation is completely absent from rock outcrops. The erosion of weakly fixed slopes caused by vegetation is much greater than the erosion of turfed slopes. The vegetation cover of the described geomorphological region for the most part cannot be used by sheep due to inaccessibility, since fine-earth areas where there are plants edible for animals are scattered in small spots between rocks and screes. The surface of the soil is covered with plants by 40-50 % in these locations. Modern relief is formed by a complex of natural components, among which tectonic-erosion factors are prominent. The Nurata Range was uplifted and erosion processes intensified in the mountains as a result of tectonic movements at the end of the Neogene and the beginning of the Quaternary. Thus, on the southern slopes of the Aktau ridges, unwashed soils are usually found on slopes with a steepness of 2-30, far less often on slopes with a 50 steepness, and even less frequently on slopes with a 100 steepness. Steeper slopes (more than 250) are more often occupied here by medium and strongly eroded, stony soils, as well as outcrops of parent rocks. Agriculture is not generally possible in the area due to the condition of the soil. Climatic conditions leave an imprint on all physical and geographical processes, and especially on soil formation. In terms of climatic zoning, the territory of the district is included in the Zeravshan district of the Turan climatic province and differs from other districts in its sharp aridity, abundance of heat, light and continentality. The climate of the re-

gion is similar to that of the desert belt, with a strong continental component. The result of such continentality is the existence of two different meteorological regimes: the cold and warm half-years. Due to the intensive development of cyclonic activity, the cold half of the year is characterized by great weather instability. During the spring mesothermic period, plants are most likely to thrive, since they are provided with the most precipitation and optimal temperatures. In the warm half of the year, the vegetation is severely restricted by the lack of moisture and oppressed by high temperatures. Thus, there is instability in the snow cover. Observations show that there is no stable snow cover; in winter, snow falls on days when there are negative temperatures. An average of 21 days pass before snow leaves the territory.

The above characterization of the climate does not cover the features of the microclimate due to the variety of relief forms that create an uneven distribution of heat and moisture on slopes of various exposures and steepness. It has been established that the southern slopes heat up more, lose moisture faster, snow melts faster on them, weathering and erosion processes are very intensive. The northern slopes heat up less, the processes of snow melting proceed gradually, so the soils are better wetted and accumulate more moisture. Dark gray soils are common on the mountain slopes of the Aktau ridge with elevations above 800-900 m above sea level [2]. The predominant territory is occupied by mountain slopes with dissected relief. The soils of the territory are suitable for grazing.

On fine-grained soils, pastures are good, and on areas covered with stony scree, they are with sparse vegetation. Soil-forming rocks are eluvial-deluvial rubble deposits formed on the destruction products of various bedrocks. Dark serozems spread in a temperate, humid climate, characteristic of the upper zones of the serozem belt. The average annual 10-120 temperatures. Summers are less hot and shorter. Winters are colder and longer. Precipitation falls 400-500 mm per year. Most of the precipitation falls in the winter-spring period. A large amount of precipitation determines the deep wetting of soils, reaching 2 m and deeper. The drying up of the soil is slower. A significant annual input of organic substances into the soil determines the increased humus content of the soils, the greater thickness of the humus horizons. Increased moisture determines a deeper washout of carbonates. Among virgin dark serozems, the following genetic horizons can be distinguished: a humus-accumulative horizon of dark gray color, reaching a thickness of 16-20 cm, with good turf cover; the upper horizons are plastic, becoming lumpy. Insect chambers are covered with limescale on the horizon (B), which is 40 to 80 cm thick. There is a lighter coloration with a brownish tint. In the form of rare smears, carbonate neoplasms begin to appear at 30-40 cm. At a depth of 40-90 cm, carbonates are most abundant. There is a pale-yellow subsoil beneath the surface. Depending on the bedrock underlayment, crushed stone, and degree of soil erosion, the thickness and presence of the described horizons differ. The skeletal structure of soils in the belt of dark gray soils is an important characteristic. Depending on the depth of gravel deposits, the degree of skeletonity varies.

Skeletal fragments are represented by small pebbles, cartilage, and rubble. Skeletal content increases from top to bottom (table 1).

To characterize the mechanical and microaggregate composition of dark serozems, table 2 presents the analysis data of the section - 1296.

Table 1 - Degree of skeletonity in virgin dark serozems

Cutting (sample №)	Depth, cm	Skeletal content, %	Skeleton degree
1296	30-40	24,9	medium skeletal
	40-50	23,9	---
	50-70	10,1	weak skeletal
803	5-20	31,2	strongly skeletal
	20-40	50,8	---

The aggregate composition is in the numerator, and the mechanical composition is in the denominator. An indication of the number of aggregates of a given size can be determined by the difference between the values of these two indicators with a + (plus) sign. Based on table 2, there are 22.58-30.30 % of physical clay in 0-70 cm thick light loamy soils. There is a significant amount of coarse dust (0.05-0.01 mm) in the fraction along the profile, which makes up 28.74-46.48 %. In soils, the silty fraction (0.001 mm) reaches 9.0-10.8 %. The content of microstructural fractions reaches 15.18-21.80 % [4].

Table 2 - Mechanical and microaggregate composition of virgin dark serozems

Cutting (sample, №)	Depth, cm	Fraction weight, %							Physical clay	Total number of units
		>0,25	0,25-0,1	0,1-0,05	0,05-0,01	0,01-0,005	0,005-0,001	<0,001		
1296	0-11	117,68	11,99	112,05	555,60	77,24	55,44		12,68	
		115,15	33,40	113,37	337,86	77,96	111,26	9,00	28,22	15,54
		+2,53	-1,41	-1,32	+17,74	-0,72	-5,82	-9,00		
	11-25	116,66	22,73	112,41	556,44	66,68	55,08		11,76	
		115,60	22,95	112,75	440,88	55,24	112,24	110,34	27,82	16,06
		+1,06	-0,22	-0,34	+15,56	+1,44	-7,16	-10,34		
	25-40	114,48	22,65	115,77	559,48	22,92	44,70		7,62	
		114,65	33,10	112,97	446,48	11,14	111,10	110,56	22,80	15,18
		-0,17	-0,45	+2,80	+13,00	+1,78	-6,40	-10,56		
	40-55	119,14	22,79	112,43	556,38	44,28	44,98		9,26	
		117,65	33,25	115,50	441,02	00,68	111,06	110,84	22,58	13,32
		+1,49	-0,46	-3,07	+15,36	+3,60	-6,08	-10,84		
	55-70	119,81	33,25	114,78	553,30	33,82	55,04		8,86	
		119,00	44,00	115,82	335,44	33,56	111,36	110,82	25,74	16,88
		+0,81	-0,75	-1,04	+17,86	+0,26	-6,32	-10,82		
	70-85	221,94	33,04	113,68	552,84	33,72	44,78		8,50	
		221,25	44,60	115,11	228,74	110,24	110,24	9,82	30,30	21,80
		+0,69	-1,56	-1,43	+24,10	-6,52	-5,46	-9,82		

Table 3 - Absorption capacity and composition of absorbed bases of virgin dark serozems

Cutting (sample №)	Depth in cm	Clay fraction, %	Absorption capacity g/ eq. per 100g of soil	mg / eq 100 g of soil				Sum of absorbed bases	% of the sum of absorbed cations			
				Ca^{++}	Mg^{++}	K^{+}	Na^{+}		Ca^{++}	Mg^{++}	K^{+}	Na^{+}
1296	0-11	35,94	11,37	99,23	00,98	00,94	00,08	11,23	882,2	88,7	88,4	00,7
	11-25	35,8	8,50	66,98	00,98	00,87	00,04	8,87	778,7	111,1	99,8	00,4
803	0-5	28,58	11,87	99,23	11,23	00,69	00,04	11,19	882,5	111,0	66,2	00,3
	5-20	30,36	8,50	66,88	11,23	00,64	00,04	8,79	778,2	113,9	77,5	00,4

Dark serozems are richer in colloidal silty fractions, and organic colloids play a more significant role in their composition than in typical and light ones. Therefore, their absorption capacity is higher The reaction of the soil solution in dark gray soils is equal to pH - 7.5-8.3 and is weakly alkaline (table 3) [1].

The more hygroscopic water in the soil, the heavier its mechanical composition and the richer its organic content. This water is not available to plants and is part of the dead moisture reserve in the soil. The maximum hygroscopicity in virgin dark gray soils ranges from 2.736 to 4.820 % of the weight of absolutely dry soil (table 4, 5). Fluctuations in the content of maximum hygroscopicity depend on the amount and composition of absorbed bases and soluble salts in the soil.

The humus horizon thickness in virgin dark gray soils is 60-90 cm, and the maximum humus content is found on the upper horizon, which is 5-11 cm thick. The amount is 2.53-3.920 % in the arable horizon. Humus content ranges from 67.74 to 152.82 t/ha in the soils [5]. In the course of the profile, the amount of humus decreases rapidly, but it still has a significant content of 0.974-1.010 % along its length. A 70-90 cm deep horizon was observed. The qualitative composition of humus is determined by the ratio of C (carbon) and N (nitrogen) (C:N) contained in it. The narrower the ratio, the more nitrogen-containing substances are in the soil (table 4). A virgin dark serozem has a ratio of pH-7,1-8,3, which is narrow. The content of mobile forms of phosphorus varies widely (19.0-23.5 mg/kg of soil), the availability of exchangeable potassium is medium and high (240.8-325.1 mg/kg) [6]. The soils are slightly carbonate (leached). Carbonates mainly in the upper horizon are 0.88-1.43 % and sometimes with depth the amount of carbonates increases to 9.90 % (table 4). Carbonates to some extent coincide with the visually established illuvial horizon. All soils are thin and medium thick. The main area up to 70 % is occupied by strongly skeletal soils. Soils are unformed, and the main area in combinations is washed away to varying degrees.

Table 4 - grochemical properties of virgin dark serozems

Cutting (sample, №)	Depth, cm	Humus, %	humus reserves in t/ha in the layer		N, %	N reserves in t/ha in the layer		P_2O_5 content		K_2O content		C:N	CO_2
			0-30 cm	0-50 cm		0-30 cm	0-50 cm	Mobile, mg/kg	Total, %	mobile mg/kg	total %		
dark serozems of the middle low mountains								dark serozems of the middle low mountains					
803	0-5	3,515	73,06	93,32	0,217	4,96	6,76	19,0	-	296,0	-	9,37	1,43
	5-20	1,873			0,119			7,5		278,0		9,07	1,65
	20-40	1,054			0,095			5,0		286,0		6,36	3,63
	40-60	0,505			0,044							6,65	7,92
	70-90	1,010			0,095							6,13	9,90
1296	0-11	3,920	113,09	152,82	0,255	7,24	9,91	23,5	0,195	325,1	2,38	8,85	0,99
	11-25	2,517			0,156			22,5	0,230	373,2	2,41	9,32	1,10
	25-40	1,720			0,119			25,0	0,245	397,3	2,53	8,33	1,21
	40-55	1,341			0,087							8,91	1,21
	55-70	1,070			0,066							9,37	1,10
	70-85	0,947			0,045				0,195		2,38	12,0	1,21
3	0-6	2,353	48,19	67,74	0,168	3,81	5,53	19,5	0,150	240,8	2,41	8,1	0,88
	6-20	1,080			0,089			9,0	0,140	192,6	2,41	7,0	0,66
	20-30	0,784			0,068			6,5	0,140	180,6	2,55	6,65	0,55

Table 5 - Maximum hygroscopicity in virgin dark serozems

Cutting (sample, №)	Depth, cm	%	cutting (sample, №.)	Depth, cm	%
803	0-5	3,555	1296	0-11	3,950
	5-20	2,746		11-25	3,429
	20-40	4,138		25-40	4,602
	40-60	4,819		40-55	3,530
	70-90	3,072		55-70	4,603

CONCLUSION

As a result of the above, virgin dark gray soils have humus horizons that are 60-90 cm thick. The maximum content of humus is on the upper horizon with a thickness of 5-11 cm. Humus amounts to 2.53-3.920 % in the soddy horizon. The soils are mostly rich in humus content (0-50 cm is 78.3-100.5 t/ha). There is a moderate and high availability of exchangeable potassium (240.8-325.1 mg/kg), while mobile forms of phosphorus are within the limits (19.0-23.5 mg/kg of soil). The soils are low-calcareous (leached). The light loamy soil with a thickness of 0.70 cm contains 25.74-30.30 % physical clay. The bulk of the fraction along the profile 28.74-46.48 % consists of coarse dust (0.05-0.01 mm). Approximately 9.0-10.8 % of soils contain clay (0.001 mm). Approximately 15.18–21.80 % of the microstructure is composed of microstructural units. In terms of mechanical composition, the soils are light loamy with interlayers of heavy loams, with sand being the predominant fraction.

REFERENCES

1 Methods of agrochemical analyzes of soils and plants of Central Asia. (5th supplemented edition). - Tashkent, 1977. - P. 152-156.

2 Gobunov B.V. Soils of the Bukhara and Navoi regions. - Tashkent, 1982. - 89 p.

3 Karovin E.P. Rozanov A.A. Soils and vegetation of Central Asia as a natural productive force, prerequisites and natural-historical zoning of energy-moisture leaks, works of the Middle Az. State University. Series-XII a "Geography". Issue 17 - Tashkent, 1938. - 125 p.

4 Methods for laboratory determination of granulometric microaggregate composition of OzDSt 817-97. - 1 p.

5 Instructions for the method “Soils. Definition of organic matter” “Determination of organic matter by the Tyurin method” GOST.26213-91. - 1 p.

6 Soils. Determination of mobile compounds of phosphorus and potassium by the Machigin method in the modification of TsINAO. GOST. 26205 – 912. - P. 1-8.

ТҮЙІН

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НАВОИ ОБЛЫСЫ НҰРАТИН АУДАНЫ АҚТАУ ТАУЛЫ СІЛЕМІНІҢ ТЫҢ ҚАРА СҰР ТОПЫРАҒЫНЫҢ АГРОХИМИЯЛЫҚ ЖӘНЕ ФИЗИКА-ХИМИЯЛЫҚ ҚАСИЕТТЕРІ

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Бұл мақалада Нұратин тауларының Ақтау тау сілемінің баурайында таралған тың қара сұр топырақтарының негізгі геоморфологиялық көрсеткіштері келтірілді. Зерттелетін топырақ аумағының бедері тау беткейлерінде қалыптасады. Бұл аумақтар-

дың жерлері мал жаю үшін пайдаланылады. Топырақ түзуші жыныстар-әртүрлі тау жыныстарының жойылу барысында пайда болған аллювиалды-делювиалды қиыршық тас шөгінділері. Қара сұр топырақтар қоңыржай, ылғалды климатта жиі кездеседі, бұл сұр топырақтың жоғарғы аймақтарына тән. Органикалық заттардың топыраққа жыл сайын едәуір түсуі топырақтағы қарашіріктің жоғарылауын, қарашірік горизонттарының үлкен қалыңдығын анықтайды. Жоғары ылғалдылық карбонаттардың терең шайылуын анықтайды. Тың қара сұр топырақтардың профилінде келесі генетикалық горизонттар ерекшеленеді: қалыңдығы 16-20 см-ге жететін қара сұр түсті гумустық-аккумулятивті горизонт; жоғарғы горизонттардың құрылымы пластикалық, кесектерге айналады. В горизонттың қалыңдығы 40-тан 80 см-ге дейін және құрамында әктаспен жабылған жәндіктер камералары бар. Түсі қоңыр реңкпен ашық. Қара сұр топырақ белдеуінің топырақтарының маңызды ерекшелігі олардың қаңқа құрылымы. Қаңқа дәрежесі әртүрлі және қиыршық тас шөгінділерінің тереңдігіне байланысты. Тың қара сұр топырақтардағы максималды гигроскопия мүлдем құрғақ топырақ массасының 2,746-дан 4,819 % - на дейін. Максималды гигроскопиялық құрамның ауытқуы топырақтағы сіңірілген негіздер мен еритін тұздардың мөлшері мен құрамына байланысты. Тың қара сұр топырақтардағы қарашірік горизонт қалыңдығы 60-90 см, қарашіріктің максималды мөлшері жоғарғы горизонтта 6-7 см деңгейінде. Оның егістік горизонттағы мөлшері 2,66-3,34 % құрайды. Топырақтағы фосфордың жылжымалы түрлерінің мөлшері 8,5-9,0 мг/кг , алмаспалы калийдің қол жетімділігі орташа және жоғары (276,9-361,2 мг/кг). Қара сұр топырақтар коллоидты-лай фракцияларына бай, ал органикалық коллоидтар олардың құрамында әдеттегі және жеңіл сұр топырақтарға қарағанда маңызды рөл атқарады. Сондықтан олардың сіңіру қабілеті жоғары.

Түйінді сөздер: элювиалды , делювиалды және қиыршықтасты жыныстар, белдеу, гумус, тың топырақтар, қаңқа, коллоидты лай, фракция, сіңіру сыйымдылығы, гигроскопиялық.

РЕЗЮМЕ

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АГРОХИМИЧЕСКИЕ И ФИЗИКО-ХИМИЧЕСКИЕ СВОЙСТВА ЦЕЛИННЫХ СЕРОЗЕМОВ ТЕМНЫХ АКТАУСКОГО ХРЕБТА НУРАТИНСКОГО РАЙОНА НАВОИЙСКОЙ ОБЛАСТИ

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В статье приведены основные геоморфологические показатели целинных тёмных сероземов, распространенных на склонах горного хребта Актау Нуратинских гор. Рельеф территории изучаемых почв представлен горными склонами. Земли данной территории используются под пастбищное животноводство. Почвообразующими породами являются элювиально-делювиальные, щебневатые отложения, сформированные на продуктах разрушения различных коренных пород. Темные сероземы распространены в умеренном, влажном климате, свойственном верхним зонам сероземного пояса. Значительное ежегодное поступление в почву органических веществ определяет повышенную гумусированность почв, большую мощность перегнойных горизонтов. Повышенное увлажнение определяет более глубокий смыв карбонатов. В профиле целинных темных сероземов выделяются следующие генетические горизонты: перегнойно-аккумулятивный горизонт темно-серой окраски, достигающий мощности 16-20 см с хорошей задернованностью; структура верхних горизонтов пластичная, переходящая в комковатую. Горизонт В имеет мощность от 40 до 80 см, содержит камеры насекомых, покрытых известковым налетом. Окраска более светлая с буроватым оттенком. Важной особенностью почв пояса темных сероземов является их скелетность. Степень скелетности различна и зависит от глубины залегания щебневатых отложений. Максимальная гигроскопичность в целинных темных сероземах колеблется от 2,746 до 4,819 % от веса абсолютно сухой почвы. Колебания максимальной гигроскопичности

зависят от количества и состава поглощенных оснований и растворимых солей в почве. Мощность гумусового горизонта у целинных темных сероземов составляет 60-90 см, максимальное количество гумуса содержится в верхнем (6-7 см) горизонте. Количество его в пахотном горизонте составляет 2,66-3,34 %. Содержание подвижных форм фосфора в почве - 8,5-9,0 мг/кг, обеспеченность обменным калием средняя и высокая - 276,9-361,2 мг/кг. Темные сероземы богаче коллоидно-илистыми фракциями, причем в их составе органические коллоиды играют более значительную роль, чем у типичных и светлых сероземов. Поэтому емкость поглощения их более высокая.

Ключевые слова: элювиальные, делювиальные и щебневатые породы, пояс, гумус, целинные почвы, скелетность, коллоидно-илистая, фракция, емкость поглощения, гигроскопичность.

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