GRANULOMETRIC COMPOSITION OF KONIMEX NATURAL GEOGRAPHICAL AREA SOILS

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Abstract

In the article information on the granulometric composition of the soils of Konimex natural geographical region is presented. On the basis of scientific research, the author proved that layers of light and medium mechanical composition are mainly formed in sandy desert soils > irrigated gray-brown > irrigated brown-meadow > irrigated meadow soils. The main factor in this was the periodicity of irrigation, and finally, the process of disaggregation in the structure of the soil occurred.

Key words: Konimex natural geographical region, granulometric composition, particles, disaggregation process, soil layer.

Аннотация

В статье представлены сведения о гранулометрическом составе почв природно-географического района Канимех. На основе научных исследований автором доказано, что слои легкого и среднего механического состава формируются преимущественно в песчаных пустынных почвах > орошаемых серо-бурых > орошаемых серо-буро-луговых > орошаемых луговых почвах. Главным фактором при этом была периодичность поливов и, наконец, происходил процесс дезагрегации структуры почвы.

Ключевые слова: Природно-географический район Канимех, гранулометрический состав, частицы, процесс дезагрегации, почвенный слой.

Аннотация

Мақолада Конимех табиий географик райони тупроқларининг гранулометрик таркиби тўғрисидаги маълумотлар келтирилган. Муаллиф томонидан илмий изланишлар асосида қумли чўл тупроқлардан > суғориладиган сур тусли қўнғир > суғориладиган сур қўнғир-ўтлоқи > суғориладиган ўтлоқи тупроқларда асосан енгил ва ўрта механик таркибли қатламларнинг шаклланаётганлиги исботланган. Бунда асосий омил сифатида яъни

суғоришлар даврийлиги хизмат қилган, пировардида тупроқлар таркибида дезагрегация жараёни вужудга келган.

Калит сўзлар: Конимех табиий географик райони, гранулометрик таркиб, заррачалар, дезагрегация жараёни, тупроқ қатлами.

Introduction

The mechanical composition of the soil is considered one of the main indicators, and determines its physical, physico-chemical, physico-mechanical, chemical and biological properties, the ability of the soil to hold water and carry water. Also, thermal characteristics of the soil, its temperature regime, physical and mechanical properties - specific resistance during processing, maturity periods of the soil, viscosity, compaction and other properties, their agronomic evaluation, irrigation water standards and quantity, ditch parameters, furrow length and soil processing technologies, the movement of moisture and saline solutions in the soil layers, the rates of salt accumulation and re-salination processes, water-salt regimes and balances, soil moisture and sufficient availability of nutrients for plants mainly depend on the mechanical structure of the soil [3; p. 190].

According to scientific sources [6; p. 282], virgin light serozem soils are considered mainly sandy and light sandy, and the main part of the mechanical composition is large dust particles (0.05-0.01 mm) (60-75%). In this case, in extremely dry conditions, mechanical particles are affected by physical radiation, but there is not enough soil moisture for the acceleration of physico-chemical, chemical, and especially biological radiation.

In this regard, the results of our research are presented below.

The research object and methods

Administratively, the massifs named "Madaniyat" and H. Olimjon in Konimex district, Navoi region of the Republic of Uzbekistan, geographically, sandy desert in automorphic conditions, semi-hydromorphic irrigated gray brown and brown-meadow soils with hydromorphic conditions, and meadow soils in hydromorphic conditions were selected as the research object. received. Field work and laboratory-analytical analyzes in the researches are carried out according to the method generally accepted in soil science "Guide to conducting chemical and agrophysical soil analyses during land monitoring " [4; p. 260] and performed on the basis manual of instructions for conducting soil surveys and drawing up soil maps [2; 48-p.].

The research results and discussion

Although the granulometric (mechanical) composition is not a very variable indicator like soil humus and nutrients, it can be slightly changed in the initial stages of development, and later, under the influence of various agro-irrigation deposits, it was also recognized by L. Tursunov and others [1; 169-s., 5; pp. 63-66].

From our side, the share of gray brown soil studied in Konimeh district of Navoi region is 5.14%. According to the mechanical composition of these soils, it was found that they mainly consist of sand and loam, sometimes light loamy layers are also found.

Sandy desert soils consist mainly of sandy and loamy granulometric composition along the cross-sectional profile, with fine sand (0.1-0.05 mm) and coarse sand (>0.25 mm) particles dominating physical sand (>0.01 mm). Fine sand (0.1-0.05 mm) particles increase to 29.4-54.8 percent in the soil profile, while coarse sand (>0.25 mm) particles hover around 15.6-34.4 percent, medium sand particles amount (0.25-0.1 mm) is observed in the range of 3.9-8.6 percent. In these soils, physical clay particles (<0.01 mm) vary by 3.6-18.8 percent in the soil profile, medium dust (0.01-0.005 mm) particles - 1.20-7.60, fine dust (The amount of 0.005-0.001 mm) particles fluctuates around 0.72-12.54 percent. In general, the amount of physical sand (> 0.01 mm) was found to be 81-96 percent (Table). This indicates that the aeration level is very high in these sandy desert soils.

Irrigated gray brown soils along the cross-sectional profile, it consists mainly of sandy, light loamy and medium loamy granulometric composition , with the predominance of fine sand (0.1-0.05 mm) and large sand (>0.25 mm) particles of physical sand (>0.01 mm) was determined. In this case, fine sand particles (0.1-0.05 mm) increase to 7.5-46.9 percent in the soil profile, large sand particles (>0.25 mm) fluctuate around 0.4-39.2 percent, medium sand The amount of particles (0.25-0.1 mm) is observed in the range of 0.1-14.7 percent. In these soils, physical clay particles (<0.01 mm) vary by 2.3-36.6 percent in the soil profile, large dust particles (0.05-0.01 mm) - 6.12-53.20, medium dust particles (0.01-0.005 mm) - 0.66-18.80, the amount of fine dust particles (0.005-0.001 mm) - 0.24-14.50 percent. In general, the amount of physical sand (>0.01 mm) was found to be 63.3-97.7 percent. From this, it was found that it is 78.7-97.7 percent in the territory of the "Madaniyat" massif, and 63.3-92.3 percent in the massif named after H. Olimjon (Table). This situation is explained as related to the periodicity of irrigation of the irrigated brown soils in the territory of the "Madaniyat" massif. That is, these soils affected the process of internal weathering after periodic irrigation.

The irrigated gray brown-meadow soils also consist mainly of sandy loam, light loamy and medium loamy granulometric composition along the cross-sectional profile, from particles of physical sand (>0.01 mm) to fine sand (0.1-0.05 mm) and coarse sand (> 0.25 mm) was found to prevail (Table).

In this case, fine sand particles (0.1-0.05 mm) increase to 6.5-66.6 percent in the soil profile, large sand particles (>0.25 mm) fluctuate around 1.6-54.8 percent, medium sand The amount of particles (0.25-0.1 mm) is observed in the range of 0.4-13.7 percent. In these soils, physical clay particles (<0.01 mm) vary in the soil profile by 8.9-37.0 percent, large dust particles (0.05-0.01 mm) - 3.5-51.8, medium dust particles (0.01-0.005 mm) - 1.58-14.60, the amount of fine dust particles (0.005-0.001 mm) - 0.70-16.60 percent. Overall, physical sand content (>0.01 mm) was found to be 76.8-92.3 percent (Table).

Irrigated meadow soils are mainly sandy loam, light loamy and medium loamy granulometric composition along the cross-sectional profile , with particles of physical sand (>0.01 mm) to fine sand (0.1-0.05 mm) and coarse sand (>0.25 mm) was found to prevail. In this case, fine sand particles (0.1-0.05 mm) increase to 12.6-54.1 percent in the soil profile, large sand particles (>0.25 mm) fluctuate around 0.8-35.4 percent, medium sand The amount of particles (0.25-0.1 mm) is observed in the range of 0.2-10.7 percent. In these soils, physical clay particles (<0.01 mm) vary by 2.3-39.4 percent in the soil profile, large dust particles (0.05-0.01 mm) - 11.1-50.7, medium dust particles (0.01-0.005 mm) - 1.7-15.8, the amount of fine dust particles (0.005-0.001 mm) - 0.30-16.90 percent. In general, the amount of physical clay (<0.01 mm) is 76.8-92.3 it was determined to be a percentage (Table).

Table Mechanical composition indicators of gray brown soils (minimum and maximum, mm), %

Coarse sand (>0.25)		Medium sand (0.25-0.1)		Fine sand (0.1-0.05)		Large dust (0.05-0.01)		Medium dust (0.01-0.005)		Fine dust (0.005-0.001)		Silt (<0.001)		Physical clay (<0.01)	
min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
Sandy desert soils															
15.60	34,40	3.90	8.60	30.50	54.80	2.20	22.20	1.20	7.60	0.72	12.54	0.60	9.80	3.60	18.80
Irrigated gray brown soils															
0.40	39,20	0.10	14.70	7.50	51.10	6.12	54.20	0.66	18.80	0.24	14.50	1.10	17.00	2.30	36.70
Irrigated gray brown-meadow soils															
1.60	54.80	0.40	13.70	6.50	66.60	3.50	51.80	1.58	14.30	0.46	16.60	1.50	18.90	7.70	37.00
Irrigated meadow soils															
0.80	35,40	0.20	10,10	12.60	54.10	11,10	50,70	1.70	15.80	0.30	16.90	1.60	19.70	2.30	39,40

As shown in the table, the amount of il particles (<0.001 mm) in sandy desert soils is 0.6-9.8%, in irrigated brown brown soils - 1.1-17.0%, in irrigated brown-meadow soils - 1, It was found that it increases by 5-18.9%, in meadow soils - by 1.6-19.7%, obeys a certain law, in which a disaggregation process occurs in the structure of irrigated soils compared to sandy desert soils, that is, the accumulation of particles. This situation is explained as directly related to the processes of internal weathering (disaggregation) taking place in the soil.

It is appropriate to show that the layers with light and medium mechanical composition are mainly formed in sandy desert soils > irrigated brown-brown > irrigated brown-meadow > irrigated meadow soils.

In general, the mechanical composition of soils determines their formation and is the main factor for agrotechnical measures developed for their use in agriculture.

Conclusionw, suggestions and recommendations

1. According to the fund materials and the results of a large number of analytical analyzes on the granulometric composition of the soils of the Konimex natural geographical region, it has been proven that the formation of layers with light and medium mechanical composition is mainly in the soils of the sandy desert > irrigated gray brown > irrigated gray brown-meadow > irrigated meadow soils. In this case, it was found that the disaggregation process occurred in the composition of irrigated soils compared to the sandy desert soils. This situation is explained as directly related to the processes of internal weathering (disaggregation) taking place in the soil.
2. The granulometric composition of soils in the desert region of Uzbekistan serves to form a fertile arable layer and, of course, to supply it with nutrients to one degree or another. These soils can be used in irrigated agriculture by placing various agricultural crops.
3. sandy desert soils, it is necessary to plant naturally growing plants and gradually expand the area of the forest.

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