



SOIL COMPOSITION AND ITS EFFECTS ON FERTILITY IN ROMITAN DISTRICT

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Abstract

The article provides information about the minerals, organic and inorganic substances in the soils of Romitan which located in the Bukhara region and their role in the growth and development of plants.

Keywords: Fertility, soil composition, minerals, organic matter, compound, biochemical processes, humus, horizon

Introduction

It is known that soil fertility is closely related to soil-forming factors: climate, relief, soil-forming rocks, wild and cultivated plants, but the level of fertility is greatly influenced by soil composition. Sufficient soil nutrients for plant growth; the presence of moisture that the plant can absorb; good soil, aeration; granulometric composition, structural condition and structure of the soil; the soil environment, the soil reaction plays an important role in the growth and development of plants. Soil fertility is greatly influenced by the amount of organic and inorganic substances in the soil and the minerals and organic compounds formed as a result of biochemical processes in these soils. The chemical composition of the soil means the presence of mineral, organic, organic and some chemical elements in the soil. The mineral part of the soil is primary; quartz, feldspar, amphiboles, pyroxine, mica and other similar compounds, secondary; montmorillonite, kaolinite, hydromica and other minerals. The organic part of the soil consists of humus. It is composed of humic, fulvic acids and humic substances, the content of elements is not constant 5 and 0.1-0.2%, 0.3-0.8 and 0.03-0.06% in the soil, up to 1% in the brown soil and less than 0.07%. The main minerals in the soil are phosphorus, potassium, calcium and magnesium, which make up the largest component of the soil quartz, clay, carbonates, sulfates, and iron, manganese, and aluminum oxides and hydroxides are also common. Minerals, organic and inorganic substances in the soil are the main factors that determine its





fertility. 'rsatadi. The composition of different soils, the amount and activity of microorganisms have a significant impact on soil fertility, which in turn leads to microbiological and enzymatic activity. The growth and development, yield and quality of crops also change accordingly, as biochemical processes such as nitrification, ammonification, nitrogen fixation in microorganisms enrich the soil composition, the decomposition of organic residues and the synthesis of new soil-forming compounds. It is important to study the composition of soils, determine their biological activity, the intensity of the processes that take place in them. In order to study soil fertility, the properties and characteristics of soils of Romitan district of Bukhara region, chemical composition, biological activity and the impact of these factors on soil fertility were studied. (incisions) were analyzed.

The results of the aqueous Surim analysis determined the amount of water-soluble salts.

C u t	Depth sm	Alcalinty		CL		SO 4		Ca		Mg	
		Gener al	Gene ral	%	Milli gram equi vale nt	%	Milligr am equiva lent	%	Milli gram equi vale nt	%	Milli gram equi vale nt
		HCO 3 %	HCO 3 M.E								
1	0 -17	0,028	0,46	0,053	1,48	0,152	3,17	0,034	1,70	0,018	1,48
	17-52	0,032	0,52	0,011	0,30	0,043	0,90	0,012	0,60	0,006	0,49
	52-82	0,027	0,44	0,009	0,25	0,048	1,00	0,012	0,60	0,006	0,49
	82-112	0,027	0,44	0,011	0,30	0,048	1,00	0,012	0,60	0,007	0,54
	112-144	0,026	0,42	0,011	0,30	0,051	1,06	0,013	0,65	0,007	0,54
2	0 - 12	0,037	0,60	0,021	0,59	0,066	1,37	0,014	0,70	0,006	0,49
	13-57	0,026	0,42	0,025	0,69	0,232	4,83	0,036	1,80	0,016	1,28
	57-78	0,023	0,38	0,021	0,59	0,232	4,83	0,038	1,90	0,017	1,38
	78-104	0,024	0,40	0,046	1,28	0,110	2,29	0,018	0,90	0,010	0,79
	104-164	0,028	0,46	0,016	0,44	0,051	1,06	0,014	0,70	0,007	0,59

Soil reactions depend on a combination of factors. These factors include the chemical and mineralogical composition of the solid part of the soil, the amount and quality of free salts in the soil, the amount and quality of organic matter, the composition of soil air, soil moisture, the activity of soil organisms, and more. One of the important factors governing the soil environment is the salts in it. Neutral, acidic and alkaline salts in the soil affect the reaction of the soil when dissolved and dried in water (when moisture escapes), and this effect is reflected in fertility. The most common mineral acid in the soil is carbonic acid. Depending on the thermodynamic conditions in the soil, the pH of the carbonic acid soil solution is 3.9-4; It can hold in the range of 5-5.7.



At the same time, the self-regulation of carbon dioxide depends on the daily changes in soil soil and the activity of microorganisms. In addition, the oxidation of sulfides in soils can temporarily or permanently produce sulfuric acid, which can lower the pH of the soil to 2-3 H₂SO₄. Sulfur compounds in the soil are found in sulfate salts such as MgSO₄, K₂SO₄, Na₂SO₄. Most of Ca and Mg are found in the colloids in the soil and in the form of simple water-soluble salts - CaCl₂, CaSO₄, CaCO₃, Mg CL₂, MgSO₄ as simple salts, as well a partially calcium phosphate- [Ca (PO₄) ₂] in carbonate soils.

C u t	Depth sm	Anion	Cation	Na By difference		Dry residue	A pinch of salt	CLSO ₄
				Milligram equivalent	%			
1	0 -17	5,11	3,18	1,93	0,044	0,362	0,315	0,47
	17-52	1,71	1,09	0,62	0,014	0,128	0,102	0,33
	52-82	1,69	1,09	0,59	0,014	1,118	0,102	0,25
	82-112	1,74	1,09	0,59	0,014	0,122	0,104	0,30
	112-144	1,78	1,14	0,59	0,013	0,122	0,107	0,28
2	0 - 12	2,57	1,19	1,37	0,032	0,176	0,157	0,43
	13-57	5,94	3,08	2,86	0,066	0,422	0,387	0,14
	57-78	5,80	3,28	2,53	0,058	0,418	0,377	0,12
	78-104	3,97	1,59	2,29	0,053	0,264	0,248	0,56
	104-164	1,97	1,29	0,58	0,018	0,144	0,118	0,42

In short, soil composition is made up of organic and inorganic substances, minerals, water and air. The main part of the soil is composed of different minerals, which contain many different chemical elements. However, even in different types, types or genetic horizons of soils, the amount of some chemical elements is not the same. Humus layer differs sharply from the lower layers in terms of chemical composition. Because the soil is the surface layer of the earth's crust, it is home to a variety of microorganisms, plants and animals. The most important factors of soil fertility are: the availability of nutrients necessary for plant growth and their variety; the presence of moisture that the plant can absorb; good soil, aeration; granulometric composition, structural condition and structure of the soil; the amount of toxic substances (acids, alkalis, salts, etc.); soil reaction and so on. Minerals, organic and inorganic substances in the soil play a key role in its fertility, plant growth and productivity. This means that the sustainable development of ecosystems also depends on the soil, which mitigates the effects of weather on plants and helps provide water and sustain life.



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