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DETERMINATION OF THE TOTAL NUMBER OF MICROORGANISMS IN THE SOIL.

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Abstract: Nowadays, man's influence on the external environment is increasing, as a result of which not only living nature but also dead nature suffers. As a result of man's conscious exposure to the soil, his condition is deteriorating, which is affecting the organisms that live in the soil. This article discusses the number of microorganisms in the soil and their use.

Keywords: Soil, petri dish, microorganisms, caterpillar, nutrient medium.

Introduction

To determine the physiological groups of microorganisms present in the soil samples, 10 g of fresh samples were taken, mixed in 90 ml of pre-prepared fresh water (sterilized), shaken and pipetted into 1 ml and immersed in 9 ml of sterilized test tubes. repeated to a concentration of 1: 1,000,000 and more. The solutions in diluted 3,5,7 and 10 test tubes were inoculated into a Petri dish medium. To do this, 0.5 ml of the suspension was placed on a 1-liter plate if the surface of the nutrient medium was spread evenly using a spatula under sterile conditions. This process was repeated 4 times [Zvyaginsev, 1980]. The following formula was used to determine the number of microorganisms in 1 g of soil by counting the colonies of microorganisms growing on the surface of the petri dish:

$$A = \frac{BVG}{D}$$

here:

A -1 g m / o cell number in dry soil, in units;

B - is the average number of colonies on a plate, in units;

V - dilution of the suspension obtained by inoculation of microorganisms;

G is the volume of 1 ml of suspension, in drops;

D is the weight of dry soil tested [Zvyaginsev, 1980].

To determine the physiological groups of microorganisms, each species was carried out in its own selective nutrient media, ie in the medium of meat peptone agar (GPA), in the environment of mineral nitrogen-absorbing bacteria-starch-ammonia agar (KAA), without nitrogen. Bacteria growing in the environment, i.e. oligonotrophs - were grown in the Ashby nutrient medium, while microscopic fungi were grown in the artificial Chapek nutrient medium, and microbial colonies belonging to each class that grew for 1–20 days were observed and studied.

Determining soil respiration. To do this, the cleaned soil sample was passed through a 2 mm sieve, 20 g of which was taken, placed in a wide-mouthed or gauze bag and moistened to 60%. Pour 0.1 N Ba (OH) 2, or 25 ml of NaOH, to release SO2 from the soil in the bag. Two drops of phenolphthalein were added to it and the finished bag or flask was stored in a thermostat at 27-28 ° C for 4 to 20 hours. Then, each bag was filled with 2 ml of 50% BaCl solution and titrated in 0.1 N HCl solution until pink. For the control option, an alkaline tube is poured into the thermostat. The liquid was

shaken 2-3 times in a thermostat. For the calculation, a difference of 0.1 n HCl experiment and control titration difference was obtained. This difference is multiplied by 2.2 to get the volume of CO2 released in 20 g of soil per milliliter.

Determining the amount of humus in the soil. To determine the amount of humus (IVTyurin, 1965), the soil sample was cleaned of plant debris, sifted through a 0.25 mm sieve, mixed, and 0.1-0.5 g of soil was weighed on an analytical balance. depending on the humus content), was placed in a 100 ml conical flask and 10 ml of 0.4 N chlorohydride solution was poured into a burette and shaken. The mouth of the flask was closed with small funnels, boiled slowly for 5 minutes, and after cooling, the liquid was poured into a 250 ml beaker, and the remaining droplets in the flask and funnel were washed with distilled water, and the liquid in the beaker was removed. The volume was increased to 250 ml, 4-6 drops of diphenylamine solution were added as an indicator and mixed. When the solution in the flask turned dark blue, it was titrated with a 0.2 N Mor salt solution until it turned pale green. The volume of Mor salt solution used for titration was determined. The total amount of humus in the soil was calculated using the following simplified formula:

$$X = \frac{(a-v) \cdot N \cdot 100}{H}$$

here:

X - amount of humus in the soil,%;

a - 10 ml of pure (without soil) 0.4 H Mor salt solution used for titration of chloranhydrin, ml;

b - is the volume of 0.2 N Mor salt solution used to titrate the solution in the conical flask, ml;

N - is the amount of humus per 100 ml of Mor salt (0.0010362);

N - is the weight of the analyzed soil, g.

Literature:

1. Baxshullayevich, Tokhirov Baxtiyor, Alimova Luiza Khalilovna, and Khudoiberdieva Sabina Alisherovna."Practical value of microscopic algae in the farming sector." *Вопросынаукииобразования* 10 (22) (2018).

2. Тохиров Б. Б., Тешаева Д. Р. Характеристика растений, обогощающие фитосанитарное состояние джайлау Кызылкума //Вопросы науки и образования. – 2018. – №. 10 (22).

3. Shamsiev N. A., Toxirov B. B., Baxshullaeva G. V. Usloviya razmnojeniya nekotoryx promyslovyx vidov ryb ozera Ayakagitma // Uchenyy XXI veka. - 2016. - №. 5-1.

4. Mirziyoyev Sh.M. The rule of law and human interests