Study on the growth of vegetables growth from Mekong River sediments

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Abstract

Research name: Study on the growth of garden plants from Mekong River sediments.

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The Mekong River is the main river for people in the community of Pho Sai District. Ubon Ratchathani Province During the period when the Mekong River subsided, sediment deposited on the coastline. Suitable for growing vegetables in the garden without using fertilizers. The researcher is therefore interested in studying the growth of home garden plants using sediments deposited from the Mekong River bank, including morning glory and coriander plants. To study whether sediment deposited along the Mekong River bank would be suitable for growing these 2 types of vegetable gardens.

Keywords: *Mekong River, sediment, vegetables,*

Acknowledgements

Research on the study of the growth of garden plants from Mekong River sediments Able to carry out studies and research successfully. The organizing team has received information, advice, advice, assistance. from all departments in Ban Pong Pao School

Thank, Institute for the Promotion of Teaching Science and Technology (IPST) and Ubon Ratchathani Rajabhat University For academic cooperation and scientific experiment equipment

Acting director of Ban Pong Pao School, Mr. Song Rangson, who gave me the opportunity and facilitated this research. as well as Miss.Sunida Tongto, GLOBE Scientist and Mr.Sarayut Salasuk, GLOBE teacher.

Please give me advice and useful suggestions. until making this research well done

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Introduction

The Mekong region comprises Cambodia, Laos, Myanmar. Vietnam And Thailand is an area with high biodiversity. In particular, there are at least 1,100 species of fish, resulting in a large inland fishery with an annual catch of more than 2.6 million tonnes, 25% of the world's freshwater fish catch. The Mekong River Basin is also home to more than 430 species of mammals, more than 800 species of reptiles and amphibians, 1,200 species of birds, and 20,000 species of plants. Every year, scientists identify new species. The number of species that have been discovered increases and indicates the number of species still waiting to be discovered. Between 1997 and 2014, 2,216 new species were discovered. farmland with sediments that are rich in minerals Forests and wetlands are also important sources of raw materials for industry. Help filter water and purify the air. Including protecting cities from natural disasters such as floods and storms About 80 percent of the 300 million people in the region They depend directly on this natural system in terms of food security, way of life and cultural traditions.

The Mekong River is the main river that feeds the way of life of coastal communities, especially people in Pho Sai District. Ubon Ratchathani Province whose way of life is inevitably tied to the Mekong River especially the Find food from water sources by fishing as the main occupation. In addition, another form of utilization of the Mekong River is growing vegetables along the Mekong River's shore from sediment deposited during low tide.

Sediment along the river bank is formed by the deposition of sediment carried by the current. when the amount of water decreases The sediment that blows with the water causes sedimentation and deposition on the soil surface. Along with the decreasing of the water in the river, it causes the area along the Mekong River's shores. The area is therefore an abundant source of minerals suitable for growing crops. Because there are a lot of minerals in the soil. Including being near a water source for growing crops as well Therefore, the

researcher has an idea to study the cultivation of vegetable gardens by taking advantage of the minerals in the sediment deposited on the banks of the Mekong River. to study the types of plants suitable for planting with minerals along the banks of the Mekong River

Research Question

Can minerals in the soil along the Mekong River be used to grow vegetables?

Hypothesis

Soils along the banks of the Mekong River are suitable for growing vegetables.

Objective

1. To study the types of plants suitable for planting with minerals along the Mekong River.

2. To compare the growth of plants grown on Mekong coastal sediments with other soil types.

Results obtained from research

1. Know the results of soil use in the school mixed with Mekong River sediment. in growing morning glory and coriander

2. Guideline for bringing Mekong River sediments to grow plants in the future.

Literature reviews

In this research study on the growth of garden plants from Mekong River sediments. The research team has compiled documents, principles, concepts, and theories. related as follows:

1. General knowledge about manure

1.1 Definition of manure

Thongchai Mala (2003) discussed the meaning of farmyard manure. manure) that is organic fertilizer in liquid and solid form, which consists of feces Urine of pets such as cattle, pigs, ducks, chickens, and other animals. Plant nutrients from manure are in small amounts and are in different forms that are beneficial to plants.

Faculty members of the Department of Soil Science (2001) refer to manure as Manure collected, which is mostly obtained from animal pens, such as pig dung, cow dung, buffalo dung. Some manure may be obtained from animals that are not domesticated but live in large groups in islands or caves, such as Bird droppings and bat droppings Which the animal manure consists of the solid part of the feces which are the remains of plants and animals that have undergone some degradation process During the passage of the digestive system of the animal and the urine is rich in various types of salts and soluble organic matter, which, when combined, will have a complete composition with plant nutrients.

1.2 Benefits of Manure

1.2.1 Add plant nutrients Manure in the solid component is characterized by like the food that the animal consumes when animals eat food Nutrients in food are only partially utilized, so nutrients remain in excretions or manure. Manure is therefore a source of both primary and secondary nutrients.

1.2.2 Providing plant nutrients in a continuous manner Effective for a longer time than chemical fertilizers.

1.2.3 Help improve soil Use of manure at an appropriate rate continuously for a long time will improve some of the physical properties of the soil (Mukda Suksawat 2001).

2. Knowledge of silt soils

Sediment is a soil that is rich in organic matter or inorganic matter that is small, such as gravel, stone, soil, sand caused by the natural decomposition process. was swept away by the tides and deposited together at the bottom where the current flows There are many types of sediments depending on the contaminants in the stream, such as soil, rocks, sand, or sediments that are decomposed organic matter. The appearance is dark in color with flexibility, called mud, another meaning is particles that are separated from the solution when left for a period, such as water mixed with powder when left for a period The powder settles down to the bottom. You can clearly see the layers of flour and water.

Research methods

Materials, equipment, and research methods

1. 8 inch plant pot
2. watering can
3. Planting spoon
4. Seeds
5. Soil temperature thermometer
6. Air temperature thermometer
7. Tree height ruler

How to conduct research

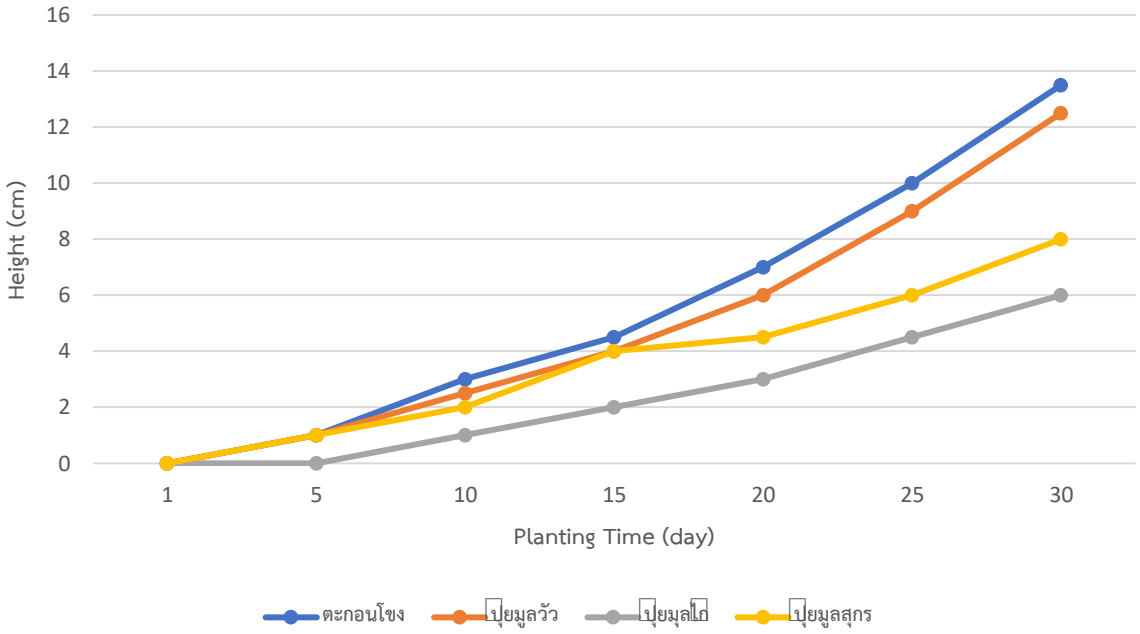
1. Prepare pots with different types of soil, for example, the soil in Ban Pong Pao School mixed with sediment along the Mekong River in the ratio of 2:1, the soil in Ban Pong Pao School mixed with chicken manure in the ratio of 2:1, and the soil in Ban Pong Pao School mixed with soil. cow dung fertilizer in the ratio of 2:1 and the soil in Ban Pong Pao School mixed with pig manure in the ratio of 2:1
2. bring seeds of each type of vegetable planted in each pot of prepared soil.
3. Water every day at 8:00 AM and 4:00 PM.
4. Record the soil temperature. Air temperature and tree height were measured every 5 days at 8:00 a.m.
5. Compare the growth results of each plant in each pot to see the suitability of plant growth in the Mekong River sediment.

Results

The results of planting morning glory

From a comparative study of planting onions in 4 types of soils: the soil around Ban Pong Pao School mixed with the Mekong River sediment; Soil in Ban Pong Pao School mixed with cow manure. Soil in Ban Pong Pao School mixed with pig manure and the soil in Ban Pong Pao School mixed with chicken manure resulted in the growth of morning glory plants as shown in Figure 1.

Figure 1. Diagram showing the growth of coriander plants



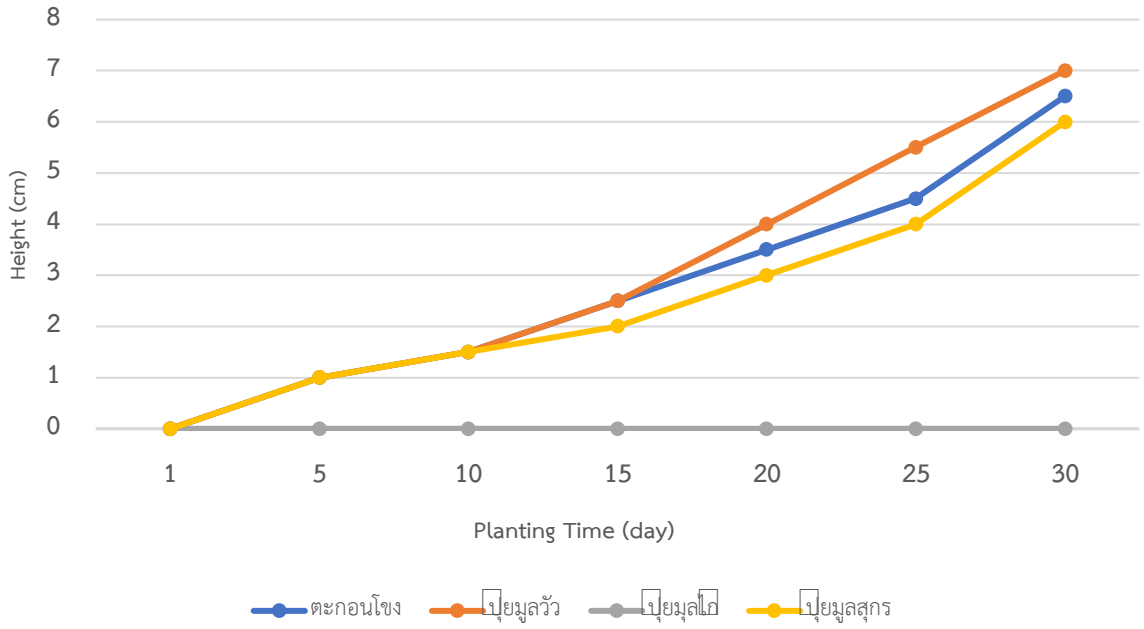
ภาพที่ 1

Growth results of morning glory showed that morning glory plant grows best in the soil of Pong Pao School mixed with Mekong River sediment. because it contains the most suitable amount of minerals for growth Followed by the soil in Ban Pong Pao School mixed with cow manure. The soil in Pong Pao School was mixed with pig manure and the soil in Pong Pao School was mixed with chicken manure.

The results of planting coriander plants

From a comparative study of coriander planting in 4 soil types: the soil in the area of Ban Pong Pao School mixed with the Mekong River sediment; Soil in Ban Pong Pao School mixed with cow manure. Soil in Ban Pong Pao School mixed with pig manure and the soil in Ban Pong Pao School mixed with chicken manure the growth results of coriander plants as shown in Figure 2.

Figure 2. Diagram showing the growth of coriander plants



ภาพที่ 2

The results of coriander plant growth showed that coriander plant grew best in soil mixed with cow manure. Because it has the most suitable mineral content for growth, followed by soil in Ban Pong Pao school mixed with Mekong River sediment. Soil in Ban Pong Pao School mixed with pig manure and soil mixed with chicken manure.

Conclusion

The results of the experiment were using the Mekong River sediment to grow 2 types of vegetables, namely onions and cilantro. were planted in pots to compare between the soil around Ban Pong Pao School mixed with Mekong River silt. Soil in Ban Pong Pao School mixed with cow manure. Soil in Ban Pong Pao School mixed with pig manure and the soil in Ban Pong Pao School mixed with chicken manure the experimental results of growing onions and coriander plants were suitable for growing with soil from the Mekong River sediment, comparing morning glory cultivation with different soil types. It was found that the soil around Ban Pong Pao School mixed with sediment along the Mekong River. It helps the morning glory to grow better than the soil in Ban Pong Pao School mixed with cow manure. Soil in Ban Pong Pao School mixed with pig manure and the soil in Ban Pong Pao School mixed with chicken manure and coriander planting. It helps coriander to grow better than the soil in Ban Pong

Pao School mixed with pig manure and soil in Ban Pong Pao School mixed with chicken manure.

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