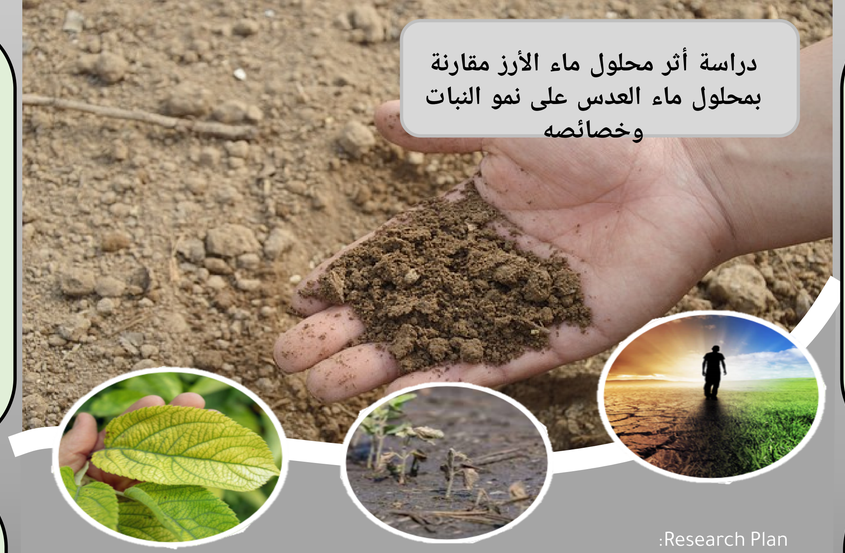
Results:

After collecting data and referring to previous studies, it became clear to us: - During our examination of samples and the use of the water protocol, the two solutions of lentil water are located in the acid range. - Through our application of the soil protocol, we have found that The pH of the soil did not change after the addition of lentil water and rice water solutions. - We found that the counting water solution is the most effective through the ground cover protocol, as lentil water contains plant proteins, dietary fiber, iron and magnesium, a greater amount of lentil water

Discussion:

It was observed through measurements and readings during the application of the water protocol that the water is suitable according to the Omani standards, and the results showed that the solutions of lentil water and rice water belong to the acidic range, with a value of 5.74 for lentil water solution and 6.12 for rice water solution. Positive effects of rice water solution were found on plant growth, as the sample treated with rice water showed better growth compared to the control sample but less than the sample treated with lentil water. As for the lentil water solution, it showed clear effects for increasing plant growth and improving soil properties. The results indicate that two water solutions are able to improve plant growth and nutrition, but a lentil water solution is the most effective, and it is advisable to apply the right amount of it for maximum benefit.



Summary:

The effect of adding rice solution compared to lentil solution on the fragile sandy soil properties and its ability to retain water, and the effect on plant growth has been studied. A certain amount of each solution was selected and the soil was periodically watered with it. Soil properties and plant growth were regularly measured. The results showed that rice solution increased plant growth speed and soil properties, but lentil solution was more effective in improving plant growth and increasing nutrients in the soil. It is recommended to publish the results to farmers to make them aware of the properties of the lentil solution and its use in their plantations.

Research Questions:

What is the effect of rice- 1 water solution on plant growth and soil properties?

What is the effect of- 2 lentil water solution on plant growth and soil properties?

References :

1- Gardener on , benefits of rice water on plants: https://2u.pw/Bu29Qn4

2- agroland the agricultural sciences journal (e-journal) , The Effect of Application of Rice Dishwater and Manure as Organic Fertilizer : https://n9.cl/gf40h

3- advancing open science (mdpi) : Chemical and Microbial Characterization of Washed Rice Water Waste to Assess Its Potential as Plant Fertilizer and for Increasing Soil Health **:** https://n9.cl/uxci4

4- Olle gardens , rice water for plants on garden or garden beds – a great way to improve plant health : https://n9.cl/3sj5k

5- top crop manager , Beneficial impacts of lentils for more climate resilient soils , https://n9.cl/j7ukm

The end:

This research helped to find out which of the two solutions (rice water and lentil water) will affect the speed of plant growth and health through our application of protocols and research in previous studies. And the results that we obtained, so we searched for the reason for the appearance of these results and explained them.

Protocol	Application mechanism
Soil Protocol	Study of soil properties (conductivity, acidity, temperature).
Ground Cover Protocol	Water the plant with the same amount of water with the division of samples into three sections: - Experimental sample (1) (fragile sandy soil with rice water fertilizer) - Experimental sample (2) (fragile sandy soil with lentil water fertilizer) - Control sample (fragile sandy soil without any additives) and plant growth observation and data recording
Water Protocol	Studying the characteristics of the water used in irrigation, which is a constant coefficient where measurements were taken (temperature, conductivity, salinity, acidity).

Research Plan:

Meet with the team via Google Meet and choose the search problem and distribute roles.

Locating the study

Collecting soil samples used for study

Prepare the solutions of rice water and lentil water by placing rice in a continent and lentils in another flask for at least 5 hours and then separating the lentils and rice from their water.

Apply appropriate protocols (ground cover, water, soil).

Introduction:

Chemical fertilizers are widely used in agriculture to meet the market needs of plants, and contain chemicals such as potassium, nitrogen, magnesium, sulfur and calcium, causing water pollution, destruction of soil structure and changes in climate. Natural fertilizers are a better alternative, and in this research the effect of fertilizing the plant with a solution of rice water and lentil water as an alternative to chemical fertilizers is studied. The rice water solution contains starch that can be used as a fertilizer for plants periodically to provide them with beneficial minerals, encourages the growth of healthy bacteria in the roots and contains nitrogen and potassium. As for the lentil water solution, it contains proteins, amino acids, carbohydrates, minerals and vitamins, and farmers have differed opinions about the best option between the two water solutions to use as fertilizer for plants.

Study of the effect of rice water solution compared to lentil water solution on plant growth and properties

students' work:

Rima Abdulaziz Abdullah Al-Balushi

Reem Khaled Saeed Al-Alawi

Salma Al Sayed Mustafa

Under the supervision of Ms. Naima Saeed Ali Al-Ghaithia