

Research Summary

The research aims to identify the impact of using aquarium algae as a biopesticide in the state of Ibri by answering the following questions:
1- What is the effect of using aquarium algae on plant growth?
2- What is the impact of using aquarium algae on the environment?

To answer these questions, a scientific research method was applied, where I used three pea plants and made three samples of the algae powder mixture. The first mixture contains algae powder and water, the second mixture contains algae powder, starch, sugar, and water, and the third mixture contains algae powder, water, and sugar. Then note The effect of each mixture of algae in eliminating parasites that live on the three samples of pea plants

Comparing the growth rates of the three samples and the effect of biocides made from algae powder on the three samples. Apply the water protocol to well water in terms of (salinity, acidity, temperature, conductivity, oxygen) to know the effect of these elements on plant growth. I studied the three samples of the algae powder mixture and followed the growth of the three plant samples. I found that the plant that was sprayed with the algae powder mixture with water grew faster and had more leaves.

The accumulation of large quantities of algae in the water basins used for irrigation in the Sultanate of Oman constitutes an environmental problem as a result of the stagnation of this water for long periods. Most of the farms in the state suffer from this environmental phenomenon.

I interviewed a specialist in the field of agriculture, Dr. Hafez Al Mahrouqi from Sultan Qaboos University, about the impact of using algae as crop pesticides and its impact on the environment.

Research questions

What is the effect of using aquarium algae on plant growth?

What is the impact of using aquarium algae on the environment?

the introduction

Green algae grows on the bottoms or surfaces of water. They may also grow in the form of tangled threads sometimes, giving the water a green color in general. This is the most important thing that distinguishes green algae from others, as it consists of pigments that make it appear green, the most important of which is chlorophyll. The degree of green color varies between pale and bright, and the sizes also vary, as some types grow in a microscopic form that cannot be seen with the naked eye as individuals, and others grow to large sizes in a way that makes green algae resemble plants, as it can be difficult to distinguish between them and the aquatic plants that grow in the bottoms of aquatic systems.

Some types of algae are easy to distinguish through the senses of touch and smell, but extreme caution must be used in these two methods, due to the toxicity of some species and their possibility of causing skin rashes. (1) It is worth noting that there are certain types of algae that contain compounds capable of killing or inhibiting the growth of microorganisms, and these compounds are used in the development of biocides.

search methods

First ,the research plan:
Establish a timeline for the research plan

الشهر	خطه العمل
سبتمبر - أكتوبر ٢٠٢٢م	معالجة مشكلة البحث وتحديد الأوقات اللازمة
نوفمبر ٢٠٢٢م	جمع ونخلل النباتات وإجراء التجربة العملية
ديسمبر ٢٠٢٢م	إجراء مقابلة مع نوري الأخضر (stem) حول إمكانية استخدام الطحالب كبيد حيوي
يناير ٢٠٢٣م	الوصول للاستنتاجات وكتابة البحث
فبراير ٢٠٢٣م	تقديم البحث

Table (2) shows the work steps in the research

وقت التنفيذ	خطوة التنفيذ	العمل
سبتمبر ٢٠٢٢م إلى ديسمبر ٢٠٢٢م		إعداد شرائح نبات البازلاء معبأ بملحقات وعمل التجربة وملاحظة نتائج التجربة وتحليلها
أكتوبر ٢٠٢٢م		إجراء التجربة وتحليلها
نوفمبر ٢٠٢٢م	خطى المقابلة	استخدام برنامج التواصل
ديسمبر ٢٠٢٢م		جمع ونخلل نباتات التجربة
يناير وفبراير ٢٠٢٣م		كتابة الاستنتاجات والتوصيات وإكمال البحث

- Collecting information about the research topic from available books and the World Wide Web (Internet).
- Bring three seedlings of the same type of pea plant
- A sample of green aquarium algae was collected and dried Then grind it and turn it into a powder
- Three types of algae powder mixture were prepared, the first a mixture of algae powder with water, the second a mixture of algae powder with sugar, starch and water, and the third a mixture of algae powder, water and sugar.
- Bring three cans of water sprayers
- Analyzing a well water sample, a water sample with live algae, and another water sample with algae powder using GLOBE devices, recording data and entering it into the axel program, conducting interviews, and writing a research report.
- Adopting the experimental and investigative scientific research approach
- Follow up on plant growth on a daily basis and record observations and developments.
- Conducting an interview with Dr. Hafez Al-Mahrouqi
- Collect data and organize it into tables.
- Entering data into the program's website www.globe.gov
- Analyzing data and representing it graphically.

Study tools:

- Three seedlings of pea plants
- Samples of algae powder
- Water - Starch - Sugar

Secondly, the study site

The study was carried out in Ibri State, Al Dhahirah Governorate, specifically at the farm (Maqniyat), as a model for obtaining algae samples that we want to apply as an agent affecting plants.

research results

The results of the experiment showed that the mixture of algae powder with water had a significant effect in eliminating parasites present on pea plants, in addition to increasing the growth of the plant and increasing the number of its leaves, in contrast to the mixture of algae powder with water, sugar, and starch, or the mixture of algae powder with starch and water.

Sprinkle pea plants with a mixture of algae powder and water



Sprinkle pea plants with a mixture of algae powder with water, sugar and starch

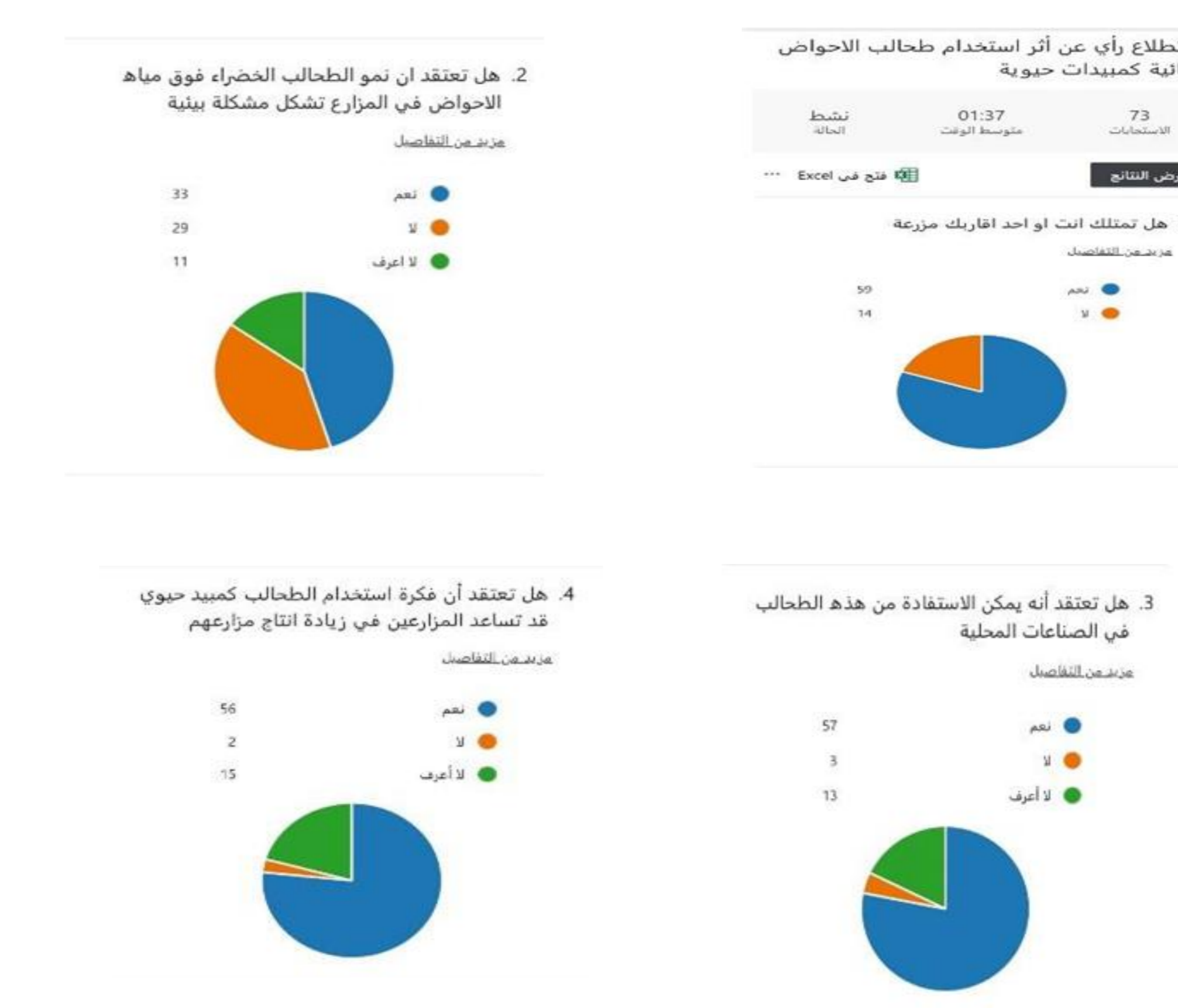


Pea plant that was sprayed with a mixture of algae powder, water and starch



اليوم	السم	عدد الأوراق النابتة	السم	عدد الأوراق النابتة	السم	عدد الأوراق النابتة
2023/10/23	سمه	7	سمه	7	سمه	7
2023/10/26	زاد قليلا	8	سمه	7	سمه	7
2023/10/29	زاد القليل قليلا	11	زاد قليلا	8	بيات بكثير	6
2023/11/1	زاد القليل لكثر	15	ثبات القليل	8	ليل لكثر	4
2023/11/3	زاد القليل كثيرا	19	زاد قليلا	9	مات	0

Implement air and water protocols



Discuss the results

The results of the experiment occurred in the sample For a very long time during the trial period during the sample Second, the length of the planet increased, but to a lesser extent than in the sample Third, the planet did not grow taller and at the end it withered and died. as The number of original papers in the sample significantly increased Parasites and worms disappeared in it, as for the sample In the second case, the number of books increased, but to a much smaller extent For the diverse sample, as for the third sample, the number decreased Until the leaves withered and died.

Conclusion

Through the researcher's use of the results of the experiment and each opinion poll

Interview with the specialist and use of water and air protocols Scientific experiment has shown that it is possible to use algae Aquariums in the manufacture of biopesticides to combat some . as Agricultural pests to which agricultural crops are exposed The researcher emphasizes the necessity of taking the necessary precautions during... Dealing with algae in order to avoid any harmful effects on Human health because it is also a source of transmission of bacteria and diseases

It must be handled with extreme caution .

The researcher believes that these results A preliminary nucleus for future research that can be applied to study this type Algae and preparing a scientific base and standards by which it is judged On their suitability as biocides as an alternative to pesticides Chemicals currently spread on the market and this requires study Extend the ground cover protocol to know the types of parasites And the diseases that these pesticides treat

the reviewer

(1) -"HOW TO IDENTIFY ALGAE TYPES" Spero, Retrieved 31/10/2021. Edid

(2) - volume 33, pages3483–3496 (2021)Journal of Applied Phycology Published: 28 July 2te021/

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