Research report

Studying the efficiency of treating wastewater from fish ponds with microorganisms. Photosynthesis with ingredients from chicken egg shells

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Abstract

Research name : Studying the efficiency of treating wastewater from fish ponds with microorganisms. Photosynthesis with ingredients from chicken egg shells

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Title: Study on the efficiency of treating wastewater from fish ponds with photosynthetic microorganisms containing a mixture of chicken egg shells. Objectives : 1. To compare the quality of wastewater and effluent from fish ponds before and after treatment with microorganisms. synthesize different light The study method was to study the quality of wastewater from fish ponds. By studying the amount of oxygen in the water (DO) using a test kit for the amount of oxygen in the water. Study of water acidity (pH) using indicator paper before and after treatment with photosynthetic microorganisms containing chicken egg shells. Studies have shown that photosynthetic microorganisms can be used to treat wastewater. Average value of oxygen in water using formula 1 of photosynthetic microorganisms Before treatment, the average value was 3. After treatment, the average value was 6. Average value of acidity-base of water using formula 1 of photosynthetic microorganisms. Before treatment, the average value was 7. After treatment, the average value was 6. The amount of oxygen in the water using the second formula of photosynthetic microorganisms before treatment was equal to 3. After treatment, the average was equal to 6. The average acidity-base value of the water using the second formula of photosynthetic microorganisms before treatment was equal to The average was 7. After treatment, the average was 6.

Keywords : Photosynthetic microorganisms

Introduction

Because the fish pond has a problem with polluted water that comes from the fish's food, the water is polluted and smells bad, making the fish unable to live in it. The benefits of chicken egg shells are as follows: Make organic fertilizer It will help nourish the trees. From the research results of many institution Found that in that eggshell rich Minerals calcium that are beneficial to trees and when put through heat It will create sulfur. It will help repel insects that come to eat and eat trees. 1.Egg Shell The majority of the egg shell's structure is calcium carbonate crystals, making up approximately 98.2 percent of the egg shell's weight. In addition, eggshells contain magnesium carbonate. and a little magnesium phosphate which the rest of the various components The eggs will be various minerals. Including protein and water. 2. Membrane inside the egg shell. Most of the ingredients are protein. 69.2 percent and fat 6.7 percent It also contains vitamins A , B , C , E. mixed with a little The components of an egg shell include: Calcium carbonate 94-97 percent Phosphorus 0.3 percent Magnesium 0.2 percent sodium potassium manganese Iron and copper 2 percent thus causing wastewater treatment This is because there are various nutrients that can help treat wastewater.

Research objectives

To compare the quality of wastewater from fish ponds before and after treatment.

Photosynthetic microorganisms containing chicken egg shell ingredients

Research question

Can photosynthetic microbes containing chicken egg shells treat wastewater?

Research hypothesis : Photosynthetic microorganisms containing chicken egg shell ingredients can Can treat wastewater

Primary variables : Photosynthetic microorganisms containing chicken egg shell ingredients

Dependent variables : Water quality

Control variables : Quantity of photosynthetic microorganisms Wastewater volume

Materials and equipment for determining water quality

1. Fermented water made from photosynthetic microorganisms containing chicken egg shells.
2. Wastewater

3.Beaker

4. DO measurement set

5.PH measurement set

6. Measuring cylinder

Materials and equipment for making photosynthetic microorganisms

1. Suction tube

2.Substance weighing machine

3. Glass stirring rod

4. MSG

5. Chicken eggs

6. Fish sauce

7. Chicken egg shells

8. Photosynthetic microbial inoculum

9. Measuring spoon

Set study points

Around the fish pond area at Miss Sirilak's house. Gold medal at house number 212, Village No. 6 , Koh Pia Subdistrict. Yan Ta Khao District Trang Province

Research methods

Step 1

Making formula 1 of photosynthetic microorganisms (without chicken egg shells) and formula 2 (with chicken egg shells)

Formula 1

1. Crack eggs into a bowl and add 10 ml of fish sauce. Stir well.

2. Add MSG to a volume of 5 g.

3. Put water in a 1.5 L volume bottle and put microbial nutrients in 10 ml of water.

4. Place it in an outdoor area with direct sunlight every day.

Formula 2

1. Crack eggs into a cup. Then add 10 ml of fish sauce and stir well.

2. Add MSG to a volume of 5 g.

3. Put water in a 1.5 L bottle and dry it in the sun for about 4-5 days. Before adding 10g of prepared eggs and the leavening agent for photosynthesis of microorganisms. and egg shells down
4. Place it in an outdoor area that receives sunlight every day.

Step 2

Collection of water quality data

Experiment with photosynthetic microorganisms, Formula 1

1. Set a water sampling point in the fish pond area.
2. Study the quality of wastewater from fish ponds. By studying the amount of oxygen in the water (DO) using a test kit for the amount of oxygen in the water. Study the acidic base of water (pH). Using indicator paper Record the results
3. Add photosynthetic microorganisms, Formula 1, in ratios of 100:20, 100:40 and 100:60 to wastewater and set aside for 1 week.
4. Study the quality of wastewater from fish ponds after treating with Formula 1 photosynthetic microorganisms for 1 week. By studying the amount of oxygen in the water (DO) using an oxygen test kit. Study the acidic base of water (pH) using an indicator. Record the results

Experiment with photosynthetic microorganisms, Formula 2

1. Set a water sampling point in the fish pond area.
2. Study the quality of wastewater from fish ponds. By studying the amount of oxygen in the water (DO) using a test kit for the amount of oxygen in the water. Study the acidic base of water (pH). Using indicator paper Record the results
3. Add photosynthetic microorganisms, Formula 1, in ratios of 100:20, 100:40 and 100:60 to wastewater and set aside for 1 week.
4. Study the quality of wastewater from fish ponds after treating with Formula 1 photosynthetic microorganisms for 1 week. By studying the amount of oxygen in the water (DO) using an oxygen test kit. Study the acidic base of water (pH) using an indicator. Record the results

Experimental results

The results of the experimental study were obtained. Studying the efficiency of wastewater treatment with different photosynthetic microorganisms. Got the results of the study As follows:

Table 1 compares the amount of oxygen in wastewater before and after treatment with microorganisms. Photosynthesis Formula 1 and Formula 2

Oxygen content in water (mg/L)

test	1st time	2nd time	3rd time	average
Before treatment with photosynthetic microorganisms, Formula 1	3	3	3	3
Before treatment with photosynthetic microorganisms, Formula 2	3	3	3	3
After treatment with photosynthetic microorganisms, Formula 1	3	6	6	6
After treatment with the second formula of photosynthetic microorganisms	5	6	6	6

In conclusion, the amount of oxygen in the water before treatment with Formula 1 and Formula 2 had an average of 3.
After treatment of formula 1 and formula 2, the amount of oxygen in the water was equal to 6.

Table 2 compares the acidity of the wastewater before and after treating with microorganisms.
Photosynthesis Formula 1 and Formula 2

Acidity of water (pH)

test	1st time	2nd time	3rd time	average
Before treatment with photosynthetic microorganisms, Formula 1	7	7	7	7
Before treatment with photosynthetic microorganisms, Formula 2	7	7	7	7
After treatment with photosynthetic microorganisms, Formula 1	5	6	7	6
After treatment with the second formula of photosynthetic microorganisms	4	5	6	6

It can be concluded that the acidity of the water before treatment with formula 1 and formula 2 has an average of 7.

After treatment of formula 1 and formula 2, the amount of oxygen in the water was equal to 6.

Summary of research results

The amount of oxygen in the water before treatment with formula 1 and formula 2 had an average of 3. After treatment of formula 1 and formula 2, the amount of oxygen in the water was equal to 6.

The average acidity of the water before treatment with Formula 1 and Formula 2 was 7. After treatment of formula 1 and formula 2, the amount of oxygen in the water was equal to 6.

From an experiment to study the efficiency of photosynthetic microorganisms containing chicken egg shells in wastewater treatment, it was found that there were no differences between microorganisms with and without chicken egg shells. Water quality after treating wastewater with photosynthetic microorganisms was better than before treatment. That is, the amount of oxygen in the water increases and the pH value increases. Makes water more efficient and can be reused.

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Organizing team

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