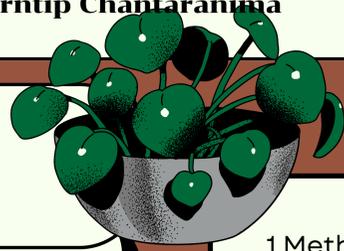




study the efficiency of antibiotics produced by microorganisms in the soil around a cassava factory

Researcher :Miss Jidapa Chusriwan Mr.Ratchanon Ratchaphol Mr.Worachit Koson Miss Pawanrat Kaewprasert Miss.Waranya Srettharuksa

Teacher: Mr.Chumpon Chareesaen Miss Tarntip Chantaranima



Abstract

The research project on studying the efficiency of antibiotics substances produced by soil bacteria around the cassava factory aims to investigate the potential of generating bioactive substances from soil around the cassava factory. This involves culturing separately isolated bacteria from the bioactive substances in the same culture dish as *Trichophyton rubrum*, a fungus found in toenails. The method includes streaking the isolated bacteria from the soil into two parallel straight lines, 2 cm apart from the center of the culture dish, then inoculating *Trichophyton rubrum* at the center of the culture dish, followed by an incubation period of approximately 24-48 hours. The experimental results revealed that the bacteria isolated from the soil around the cassava factory were effective in inhibiting *Trichophyton rubrum* growth. Another round of experiments was conducted to obtain antibiotics that are effective in inhibiting *Trichophyton rubrum* from the soil around the cassava factory.

Introduction



Goal of the Project

To separate microorganisms from the soil around the cassava factory, and to study the ability to create antibiotics from the soil around the cassava factory

Research Questions

Can the soil around cassava plants a source of discovery of microorganisms that can produce antibiotics?

Research hypothesis

The soil around cassava plants is a source of microorganisms that can produce antibiotics.

Results discussion

Discuss the results From experiments to prevent diseases caused by Toenail fungus using microorganisms from the surrounding soil Cassava factory in Kalasin province found Microorganisms in the soil around the cassava factory 10 Types include f1-10 in experimental trials.Efficiency of microorganisms found in the surrounding soil

All 1 types of cassava factories were found to have Two types of microorganisms are effective in Stops 2 types of diseases caused by nail fungus.

Including A and F8 by experimenting 3 times.These two types of microorganisms can Inhibit germs all 3 times by F2 F3 F4 F5 F6 F7 F9 F10 found that in the 1st experiment-3 Unable to stop pathogens Microbes found in the soil have the following properties:

Soil pH value 7.4

Nutrients

-N 50 ppm

-P 5 ppm

-K 50 ppm

Research methods

1 Method and Experimental

1.) Soil dilution around the cassava factory: Take 10 grams of soil from the desired area around the cassava factory and place it into a flask containing 100 mL of sterilized water to kill any pathogens (resulting in a soil solution diluted at a ratio of 1:10). Shake the soil solution, then allow the flask to settle until the suspended soil particles begin to settle, and use a pipette to extract 10 mL of the soil solution. Dilute it with 100 mL of sterilized boiled water to kill pathogens (resulting in a soil solution diluted at a ratio of 1:100). Mix well and continue diluting in the same manner until achieving a soil solution diluted at a ratio of 1:1000. Use a pipette to extract 1 mL of the soil solution diluted at ratios of 1:100 and 1:1000, and place them onto the surface of the culture medium. Incubate the plates in an incubator at room temperature for 2 days before proceeding to the next step.

2.) Testing the efficacy of bioactive substance production by bacteria isolated from soil around the cassava factory: Inoculate bacteria suspected of having antibacterial properties onto culture plates using streaking, with two parallel lines spaced 2 cm apart from the center of the culture plate. Incubate the plates at 37 degrees Celsius for 24 hours, or until the bacteria grow sufficiently to produce bioactive substances. Then, inoculate *Trichophyton rubrum* onto the same culture plates alongside the bacteria producing bioactive substances. Incubate the plates for approximately 24-48 hours at 30 degrees Celsius. Afterward, examine the growth of the tested bacteria and observe if any of them are unable to grow near the colonies of bacteria producing bioactive substances. This indicates the efficacy of the bioactive substances produced by the tested bacteria in inhibiting the growth of the tested pathogens

Results

Experimental results

Table 1 Experiment Result of Microbe Sample 1(F1)

Day/Month/Year	Microbe Sample 1			
	The test sample 1	The test sample 2	The test sample 3	sample
15/09/2023	-	-	-	-
17/09/2023	inhibition	inhibition	inhibition	

Table 2 Experiment Result of Microbe Sample 2 (F2)

Day/Month/Year	Microbe Sample 2			
	The test sample 1	The test sample 2	The test sample 3	sample
15/09/2023	-	-	-	-
17/09/2023	noninhibition	noninhibition	noninhibition	

Table 3 Experiment Result of Microbe Sample 3 (F3)

Day/Month/Year	Microbe Sample 3			
	The test sample 1	The test sample 2	The test sample 3	sample
15/09/2023	-	-	-	-
17/09/2023	noninhibition	noninhibition	noninhibition	

Table 4 Experiment Result of Microbe Sample 4 (F4)

Day/Month/Year	Microbe Sample 4			
	The test sample 1	The test sample 2	The test sample 3	sample
15/09/2023	-	-	-	-
17/09/2023	noninhibition	noninhibition	noninhibition	

Table 5 Experiment Result of Microbe Sample 5 (F5)

Day/Month/Year	Microbe Sample 5			
	The test sample 1	The test sample 2	The test sample 3	sample
15/09/2023	-	-	-	-
17/09/2023	noninhibition	noninhibition	noninhibition	

Table 6 Experiment Result of Microbe Sample 6 (F6)

Day/Month/Year	Microbe Sample 6			
	The test sample 1	The test sample 2	The test sample 3	sample
15/09/2023	-	-	-	-
17/09/2023	noninhibition	noninhibition	noninhibition	

Table 7 Experiment Result of Microbe Sample 7 (F7)

Day/Month/Year	Microbe Sample 7			
	The test sample 1	The test sample 2	The test sample 3	sample
15/09/2023	-	-	-	-
17/09/2023	noninhibition	noninhibition	noninhibition	

Table 8 Experiment Result of Microbe Sample 8 (F8)

Day/Month/Year	Microbe Sample 8			
	The test sample 1	The test sample 2	The test sample 3	sample
15/09/2023	-	-	-	-
17/09/2023	noninhibition	noninhibition	noninhibition	

Table 9 Experiment Result of Microbe Sample 9 (F9)

Day/Month/Year	Microbe Sample 9			
	The test sample 1	The test sample 2	The test sample 3	sample
15/09/2023	-	-	-	-
17/09/2023	noninhibition	noninhibition	noninhibition	

Table 10 Experiment Result of Microbe Sample 10 (F10)

Day/Month/Year	Microbe Sample 10			
	The test sample 1	The test sample 2	The test sample 3	sample
15/09/2023	-	-	-	-
17/09/2023	noninhibition	noninhibition	noninhibition	