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using a microwave instead of autoclave to sterilize bacterial culture media

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We use this protocol and it's working

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Disclaimer

this method should only used for routine culture, it is not advised for novel bacteria or any other important first culture.

Abstract

this protocol uses a microwave to sterilize and polymerize culture media for bacterial propagation in 3 minutes, the whole protocol can be done in 15-20 minutes without the need for an autoclave and waiting an hour for it to heat to 121 °C which can consume a lot of electricity and time, this method is straight forward and clean and gave good results of growth without pollution of non desired bacteria, it can be used for liquid cultures and solid cultures as well.

Guidelines

use heat gloves when you are taking the culture bottle out of the microwave

Materials

-LB agar
-water
-microwave
-heat resistant bottle
- bacteria
- laminar flow hood
- incubator

Safety warnings

do not put any metal in the microwave or aluminum foil
make sue the bottle you use is microwavable and heat resistant without any cracks or loosen lid, and leave at least one half of the bottle empty, and stop the microwave in case you hear or see anything wrong.

Before start

prepare your media and bottle and plates, and make sure to turn on the laminar flow hood 15 minutes ahead of culture.

adding the media powder

18m 30s

1 measure the desired quantity of media powder you want with a sensitive scale, ex: 4 g of LB aga inside a heat resistant glass bottle with a lid with proper volume (size 250ml).

2 add the water you need, preferably distilled but tap water works fine for me, ex: 100 mL .

3 close the lid tightly to create pressure, and mix by shaking in your hand for 00:00:30 until the powder is dissolved.

30s

4 put the media in the microwave n the highest degree for 00:03:00 , stop the microwave if you see bubbles appearing, let the bottle rest for few seconds then continue the process.

3m

5 you may need an **extra minute** to make sure everything is correct, the media will look yellow and transparent.

6 take out the bottle with the media and let it cool under the flow of tap water, be sure to rotate the bottle under water until it becomes easy to touch with your hand, that means it reached 60-65 °C .

7 sterilize the bottle by rubbing alcohol on it, and take it inside the laminar flow hood.

8 add your desired antibiotic like ***ampicillin*** **(** 10 µL 10 ug/ml **)**to the media and shake inside the hood gently to spread it.

9 pour the media inside petri dishes, about 10-15 mL is enough, then wait for about 00:15:00 until it cools off and solidify. 15m

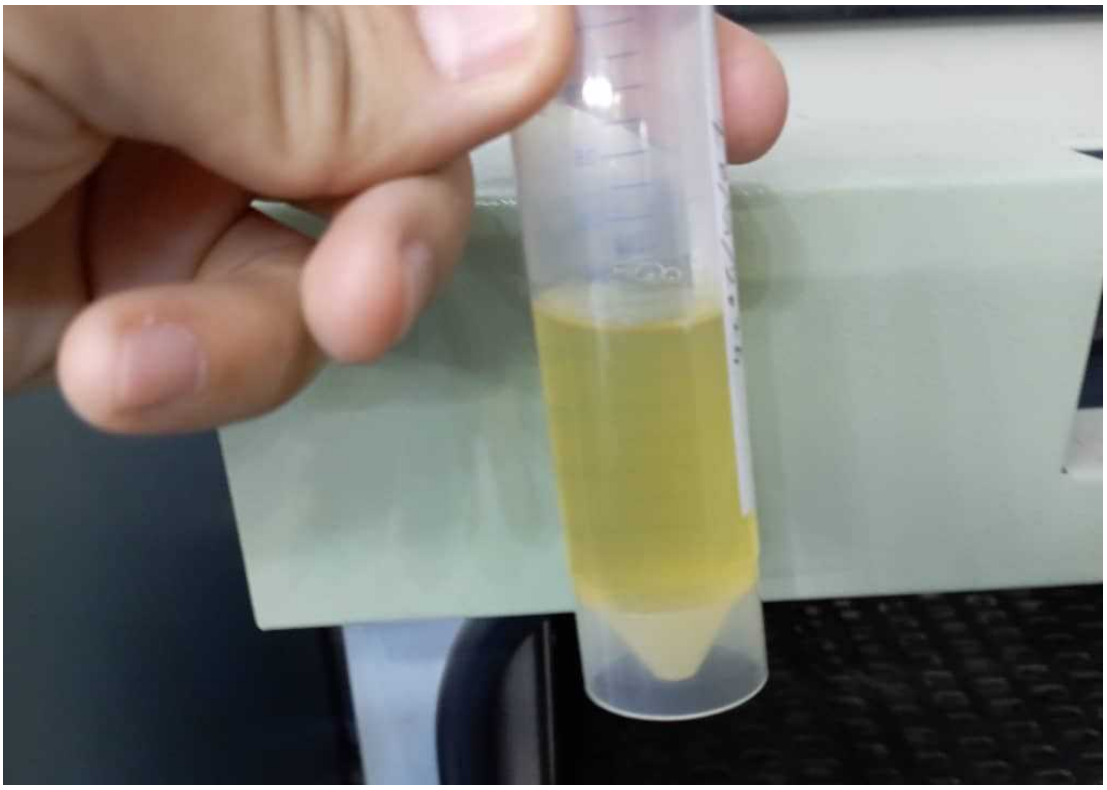
10 culture on your plates containing the sterilized media with the microwave method, then close the plates and place them in an incubator 37 °C to grow your culture for **16-24 hours.**

results are here shown after 24 hours of growth

11 you can visually see the solid LB agar plates with grown cultures and no pollution of other bacteria.

LB agar plate sterilized and prepare in the microwave with bacterial growth PLYSs

12 i also tried a liquid LB broth and it gave good results with no pollution with very good growth.



microwaved LB broth with PlySs culture it gave a very good density of turbidity from grwoth.

Protocol references

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