1% Agarose Gel Electrophoresis

Introduction

This protocol describes how we ran various gel electrophoresis procedures throughout our project to check the size of various PCR products.

Reagents

- DNA sample of interest
- 1X TBE buffer
- Powdered agarose
- SYBR Safe
- New England Biolabs 1 kb Plus DNA Ladder
- Loading dye

Equipment

- Gel box
- Gel tray
- Well comb
- Power supply and electrodes
- Analytical balance and weigh boats
- Microwave
- Pipette and tips
- Parafilm

Procedure

1. Weigh 1g of agarose and mix with 100 mL of 1X TBE buffer, creating a 1% agarose gel solution.
2. Microwave in 15-20 second intervals removing the flask from the microwave and gently swirling until the mixture is clear and the agarose crystals are completely dissolved. Allow the mixture to cool for 5 minutes until you can touch the flask with your bare hands.
3. Add 3 µL of SYBR Safe (or any gel stain) to the solution.
4. Pour mixture into gel tray with the appropriate comb and allow it to solidify for 30 minutes.
5. Pull out the comb and place gel tray into the chamber of the gel box. Fill the gel box with 1X TBE buffer until the wells are completely covered.
6. Load the gel by placing 6 µL of 1 kb Plus DNA Ladder into the first well.
7. Mix 5 µL of your DNA sample of interest with 1 µL of loading dye on Parafilm using a pipette and add it into the appropriate wells.
8. Connect the electrodes from the power supply up to the gel box, set to 115 V, check for bubbles in the TBE buffer, and allow the gel to run for approximately 1 hour or until the samples migrate ¾ of the way down the length of the gel.
9. Carefully remove the gel and place it in the gel imager to photograph.