Gel Electrophoresis

Aim

To visualize or separate DNA fragments according to their size using gel electrophoresis.

Procedure

1. Prepare agarose 1% solution by weighing 1g of agarose into 100ml TAE 1X buffer. Microwave mixture until the agarose powder has dissolved entirely. Careful not to burn yourself. Carefully stir mixture to facilitate dissolving of powder.
2. Once the gel solution has cooled down to 50-60 °C, add 10 μl of Gel Red solution 10'000X (or another gel stain).
3. Cast the agarose gel on a cast and place the comb on the top part of the gel. Let the gel solidify at room temperature for 20-30 min. Then place the gel onto the electrophoresis apparatus ensuring that it is submerged in TAE 1X buffer.
4. Meanwhile, prepare DNA samples by adding 5X loading dye solution into the DNA samples (1 μl of loading dye into 4 μl of DNA sample).
5. Carefully load each DNA sample into designated wells. To determine the DNA sizes on the gel, also load a DNA Ladder on one of the wells.
6. Run an electric current of 110 V for 30 minutes. If the DNA bands have not separated completely, run the gel for a few more minutes.
7. Visualize gel using a gel reader or under UV light.

Sources

http://www.jove.com/video/3923/agarose-gel-electrophoresis-for-the-separation-of-dna-fragments

Lab protocol

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iGEM Stockholm

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