**Appendix 2: Gel Electrophoresis Protocol**

**MATERIALS:**

* **Fresh 1X TAE Buffer (CAT #166-0742)**
* BIO-RAD Certified™ Molecular Biology Agarose (CAT #161-3100)

**BASIC INFORMATION:**

* Biotechnology Explorer™ Forensic DNA Fingerprinting Kit: 1% Gel (0.4g Agarose, 40 mL 1X TAE)
* Biotechnology Explorer™ GMO Investigator™ Kit: Use pre-made Gels or 3% Gel (1.2g Agarose, 40 mL 1X TAE)

**GEL MAKING:**

1. Measure out 40 mL of 1X TAE - Use Fresh Diluted TAE
2. Weigh out Agarose - Amount per Kit listed above
3. Mix well and melt completely by Microwave or Hot Plate - Melt until Clear

|  |  |  |
| --- | --- | --- |
| **HOT PLATE** |  | **MICROWAVE** |
| 1. Place a rubber stopper or folded paper towel in 125 ml Erlenmeyer flask |  | 1. Place a rubber stopper or folded paper towel in 125 mL Erlenmeyer flask |
| 2. Turn Hot Plate on to 95 degrees Celsius or to medium/high temperature |  | 2. Microwave for about 20-30 seconds – If it bubbles stop it immediately  |
| (It melts into solution at 85-95˚C) |  | 3. Take out and swirl  |
| 3. Heat until it is clear swirling every few minutes |  | 4. Microwave for about 7 seconds – If it bubbles stop it immediately |
| (If it bubbles pull it off immediately but be careful it will be hot) |  | 5. Take out and swirl (Careful it will be warm) |
| 7. Once it is clear take off and swirl (Careful it will be hot) |  | 6. Microwave for about 4 seconds – If it bubbles stop it immediately |
| 8. Let it cool on your bench for 5-10 minutes before pouring gel or until you can hold it |  | 7. Take out and swirl (Careful it will be hot) |
|  |  | 8. Let it cool on your bench for 5-10 minutes before pouring gel or until you can hold it |
| **WATCH CAREFULLY! IT SHOULD NOT BOIL** |

1. While your gel is cooling assemble gel casting apparatus (Tape only to the cassette not tape-on-tape)
2. Pour into Gel Apparatus and add comb.
3. Let cool until it has solidified and turned opaque (~10-15 minutes).
4. Remove comb from gel by pulling straight up.
5. Gel can be stored in its tray, in the refrigerator, sealed in a zip lock bag with 1-2ml 0.25X TAE buffer for up to one week

**GEL RUNNING:**

1. Place gel into running chamber, make sure TAE buffer covers the top of the gel
2. Load Samples. Run at 200V for 20 minutes