Drosophila Fly Stock Maintenance – Preparation of Drosophila food bottles

Background: *Drosophila melanogaster* completes its life cycle in 15 days beginning from the embryo stages to an adult fly. For a healthy fly stock, the flies should be transferred to fresh media bottles every alternate week. We use Corn-meal Agar as the food medium for maintaining Drosophila melanogaster in our lab.

Requirements:

Category	Particulars
Chemicals	• Agar • Corn flour • Dextrose • Distilled water • Dry yeast granules • Ethanol • Methyl hydroxybenzoate • Orthophosphoric acid • Propionic acid • Sucrose
Apparatus/Facilities	• Autoclave • 500 mL conical flask • Funnel • Glass/plastic bottles or plastic tubes • Measuring cylinder • Micropipette and tips • Test tubes • Test tube stand • Tip discard beaker (containing tap water) • Weighing balance
Miscellaneous	• Aluminum foil • Cotton • Spatula • Autoclaved tissue paper

Composition of Corn-meal Agar medium:

	Component	Amount
Part A	Corn flour	24.9 g
	Dextrose	15 g
	Sucrose	7.5 g
	Agar	5.4 g
	Dry yeast granules (crushed)	4.5 g
	Distilled water	300 mL
Part B	Propionic acid	1.2 mL
	Orthophosphoric acid	0.2 mL
Part C	Methyl hydroxybenzoate	0.21 g
	Ethanol	2 mL

Propionic acid, Orthophosphoric acid and Methyl hydroxybenzoate act as preservatives.
(Adapted with slight modifications from Lakhotia & Ranganath, 2021.)

Procedure:

Part 1: Preparation of the food medium

1. Weigh corn flour, dextrose, sucrose, crushed yeast granules and agar and add them to a 500 mL conical flask.
2. Add 300 mL distilled water into the flask, 100 mL at a time, and shake well to mix the contents. Make sure to remove all lumps.
3. Plug the mouth of the flask with cotton and sterilize the food medium in an autoclave at 121°C or 15 psi for 20 minutes.
4. Meanwhile, mix propionic acid and orthophosphoric acid in a test tube and cover the mouth
5. of the tube with aluminum foil.
6. In another test tube, dissolve methyl hydroxybenzoate in ethanol and cover the mouth of the tube with aluminum foil.
7. After the autoclave cycle is complete, remove the media flask from the autoclave and allow the food medium to cool down slightly.
8. Then add the preservative mixtures into the flask and shake well.

Part 2: Preparation of food bottles and vials

1. Pour approximately 15 mL of food medium into a sterilized culture bottle using a funnel.
2. Plug the bottle with cotton.
3. Ensure that the cotton plug is not very tight or very loose.
4. Allow the medium to cool down and solidify.
5. Wipe condensed moisture from the walls of the bottles using a small spatula wrapped with autoclaved tissue paper.
6. Store the bottles in the fly incubator at 20–25°C until use.

Note: Use food bottles or vials on the same day or within 2–3 days from the date of preparation.