HAHS Bioplastics Procedures (August 17, 2021)

Experiment 1: Making bioplastic from tapioca or cornstarch

Ingredients:

1) 2 tsp water
2) 1 tsp of starch (tapioca or cornstarch)
3) ¼ tsp glycerol
4) ¼ tsp vinegar
5) Food color (optional)

Procedure:

1) Combine all of the ingredients in the saucepan and stir until there are no clumps left. You may need to use a whisk to disperse all of the clumps.
2) Place the saucepan on the stove and start heating the mixture on medium-high heat.
3) If you want to color your plastic, you can add a few drops of food coloring at this step.
4) Stir continuously as the mixture heats. Bring it to a gentle boil. As the mixture heats, it will become more translucent and begin to thicken. Total heating time will be around 10-15 minutes. Lumps may begin to form if the mixture gets overheated.
5) Remove the pan from the heat when it becomes clear and thick. may begin to form if the mixture gets overheated.
6) Spread the heated mixture onto a piece of foil or petri dish to let it cool. If you would like to mold the plastic into a shape, it must be done while it is still warm.
7) Leave the plastic in a cool, dry place for this process. Check the plastic after two days to see if it has fully hardened

Experiment 2: Making bioplastic by using Seaweed!

Ingredients:

1) ½ tsp glycerol
2) 4 tsp gelatin or agar
3) ¼ cup hot water
4) Food coloring (optional)

Procedure:

1) Combine all of the ingredients in the saucepan and stir until there are no clumps left. You may need to use a whisk to disperse all of the clumps.
2) If you want to color your plastic, you can add a few drops of food coloring at this step.
3) Place the sa.ucepan on the stove and start heating the mixture until 95 °C or begins to froth
4) Remove the pan from the heat source and get rid of any excessive froth.
5) Spread the heated mixture onto a piece of foil or petri dish to let it cool. If you would like to mold the plastic into a shape, it must be done while it is still warm.
6) Leave the plastic in a cool, dry place for this process. Check the plastic after two days to see if it has fully hardened