



HOW TO GROW YOUR OWN BIO-MATERIALS



MAKE YOUR OWN AGAR BIO-PLASTIC

Note: You'll be working with hot liquid, so adult supervision is required, as well as the use of safety goggles and gloves.

TOOLS

- Kitchen scale
- Measuring cup
- Pot
- Stirring spoon
- Thermometer
- Any container that can hold and set a hot liquid, such as molds or petri dishes

INGREDIENTS

- 80 milliliters water
- 3 grams agar
- 12 grams glycerin / glycerol
- Food coloring or homemade natural dyes (optional)

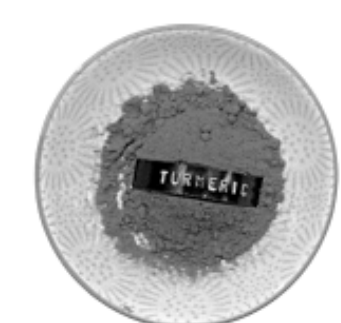


FACT

The use of bio-plastic predates plastic made from petroleum. By the 15th century BCE, Egyptians were using glues made from collagen, casein or albumin in furniture constructions.

INSTRUCTIONS

1. Mix water, agar and glycerol together in a pot. Stir until agar and glycerol dissolve.
2. Put the pot on the stove and stir until mixture is heated to just below boiling (about 200°F). When the mixture begins to bubble, remove from heat and continue to stir. Skim off any froth from the top with a spoon. (Any froth left on the surface will cause air bubbles in your bio-plastic.)
3. Pour liquid into mold/s or other containers. Add dye or other decorative items such as cork or flowers, if desired.
4. Let sit for 30 to 60 minutes to solidify, then remove from mold. (Note: The material can continue to change over the next 1 to 2 days, becoming harder or changing shape.)
5. Inspect your creation! Then, start thinking of ways to iterate your process for next time – tweak proportions, pour a thinner/thicker sample, or mix in new items to decorate with.



TIP

You can add food waste such as used coffee grounds, orange/onion/potato peels, chili flakes, tea leaves, eggshells, etc. for color and texture. For natural dyes, try vivid ingredients like turmeric, beetroot juice, spirulina powder or active charcoal.

