

Dawson Lab Tomato Seed Sanitation Protocol

Last updated: February 2, 2020

The materials used for this procedure were approved by MOSA as adherent to NOP standards. This protocol should be kept on record for organic inspections.

Materials

- Clorox bleach (8.4% NaOCl)
- TriSodium Phosphate (TSP) **
- Water
- Wire mesh strainer
- Small cotton muslin bags
- Marking tags and pen
- Stir rods
- Stir plate and magnets
- Large beakers
- Freshly fermented tomato seeds
- Spoon
- Sharpie and coffee filters

Method

- 1.) For each container of seed, make an ID tag with the marking tags and pen. Tie each tag to its own muslin bag and set aside.
- 2.) Once seed fermentation is complete (after 2-3 days), place the seed and pulp mixture into a larger container (ex. quart jar) and fill with cool, clean water. Allow the tomato seeds to settle on the bottom (good tomato seed sinks, duds float). The pulp and debris should float to the top and can be poured off into the sink. Multiple sluices may be required to get fully cleaned seed. Dump the seeds into a wire mesh strainer. If the gel layers on the seeds have not come off during fermentation, they can be "power washed" with the sink's hose.
- 3.) Use a spoon to transfer the clean seeds from the strainer into their corresponding muslin bag. Tie the bags tightly. Once a bag is tied, use the loops of the strings to hang it on a glass stir rod so that it hangs down. Place the stir rod so that it lays across the top of a beaker with a stir plate magnet in the bottom. The muslin bag should hang below, inside the beaker. The ID tag should be hanging outside of the beaker. You can hang several bags of seed across the same stir rod, so there are multiple bags per beaker. Make sure they are not overcrowded though.
- 4.) Make a 10% solution of TSP. For example, to make 1 L of solution, mix 100g of TSP into 1000mL (1L) of water. Double-check that no ID tags are hanging inside the beakers. Once mixed, pour the solution into the beakers so the bags are submerged. Place the beakers on a stir plate and turn to medium speed. Set a timer for 30 minutes.
- 5.) While seeds soak in the TSP solution, prepare a 0.5% solution of NaOCl. To calculate how much bleach to use the formula:

$$\text{Volume needed} = (\% \text{ NaOCl desired})(\text{total volume of solution})/(\% \text{ undiluted NaOCl})$$

So, to make 1L of solution:

Volume needed = $(.5)(1000\text{mL})/(8.25) = 60.6 \text{ mL}$ bleach (add 1000-60.6mL, or 939.4mL, of water for final solution)

- 6.) When the seeds have soaked in the TSP solution for 30 minutes, lift the stir rods to remove the bags from the liquid. Rinse the seeds briefly while still in their bags. Do this in a range hood.
 - a. ***In Dane County, TSP CANNOT be dumped down the drain! Put the solution into a glass container with a lid and contact UW's EHS for chemical disposal. The instructions are on their website, or you can call 608-265-5000.*
- 7.) Set the beakers, magnets, and stir rods with seed bags back up. Now fill them with the bleach solution made in step 5. Set the stir plate to medium and allow to soak for 20 minutes.
- 8.) After 20 minutes, turn the stir plate off, remove the bags from the liquid and set them aside. The bleach solution can be dumped down the drain with running water.
- 9.) One by one, untie each bag and put the seeds back into the wire mesh strainer. Rinse the seeds under running water for 5 minutes. This is to get the concentration of bleach below the NOP standards of 4ppm.
- 10.) Use a Sharpie to label a flattened coffee filter with the plant ID information. Take the seed from the strainer and spread over the coffee filter. Fold the filter in half or fourths and place on a dehydrator rack to dry.
- 11.) After two days, use fingers to separate the seeds on each coffee filter. Put into an appropriately labeled seed packet. Make sure the seed packet has "TREATED MM/DD/YYYY" written clearly on the front.