

EM-5

for foliar feeding

EM-5 is used as a foliar spray and is a more potent version of Activated EM-1. It can be made at home using simple ingredients with EM-1 which consist of natural, safe, beneficial, good microbes. EM-5 is used to directly apply to plants (avoid the flowers).

How to Make EM-5

Preparations

- **Implements** - bowl or bucket to mix in, measuring cup, PET plastic bottle(s), and (optional) funnel. Also, after making and letting the EM-5 ferment, you'll need either a spray bottle or sprayer or mister.
- **Water** - preferably warm tap water.
- **Ingredients** - see list below.

Ingredients

- **1 part EM-1 Microbial Inoculant** (a liquid containing a combination of naturally existing microbes found in foods, soil, and water.)
- **1 part molasses** (or high sugar material)
- **1 part distilled liquor** (40% alcohol, such as, Vodka, Tequila, or Whiskey)
- **1 part vinegar** (for example, non-filtered apple cider vinegar)
- **20 parts water** (optional: heated to 100-120°F to make it easier to dissolve the molasses; otherwise, simply dissolve with a clean hand)
- **3 to 5 cloves of garlic** (un-chopped cloves, but removed from the garlic bulb and skin)
- **3 to 5 hot peppers** (cayenne peppers; uncut whole peppers)
(Other plant materials you can also add that are high antioxidant plant materials: ginger, orange peel, etc.)

Example for making 1 quart

Using the above ratio of 1:1:1:1:20,

1.6 fl oz (3 tablespoons) for each of the 1 parts above (EM-1, molasses, alcohol, and vinegar)

1 quart (32 fl oz, 4 cups) for the 20 parts of water.

How To Mix

1. Using a bowl or bucket that holds at least 1.5 quarts or more, mix all of the liquid materials; make sure to dissolve all of the molasses (if by hand, rub inside the bowl or bucket until it's all gone, i.e., you don't feel the thick molasses on the bottom anymore).
2. Pour the mixture into a quart (or liter) size PET bottle, such as, a soda bottle which can handle any gas pressure buildup. A funnel would be helpful to pour into the bottle.
3. Add 3 or more of the garlic cloves and the hot peppers.
4. **Let ferment for about 2 weeks or longer.** Store out of direct sunlight.
Optionally, you can use a pH meter or pH paper; when the pH is below 4.0, it is ready.

Daily check for gas build-up; release by very slightly opening cap; do so over a sink.

When ready, apply as suggested below, and use within 6 months. Store out of sunlight.

Applications of EM-5

1. Dilute with water and apply at a rate of 1 part EM-5 to 1,000 parts water directly to the leaves. Avoid applying to the flower petals.
Mix the dilution in a container or pitcher, and then pour into a hand-held spray bottle or a hand pump sprayer or mister.
If applying to the soil, use a heavier dilution rate of 1:500.
2. Applications are most effective when applied in early morning. Application could also be done at night instead.
3. After the first application, apply on alternate weeks or once per month.
4. For best results, alternate with regular **Activated EM-1** applications.

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Reference

EM Research Organization (EMRO) emro.co.jp (English version: emrojapan.com)
Teraganix (teraganix.com) dba EM America

EM-1 is OMRI Listed (Organic Materials Review Institute), omri.org, and can be used by certified organic operations.