

Note from Compost Collective Facilitator, Estella Lee:

*I use this **Eco Enzyme** recipe for my food waste instead of the Bokashi zing. It works well and stops the waste from smelling. The Eco Enzyme can also be used in our gardens, and for many other things as you can see below. Instead of spraying the Eco Enzyme on the food waste, I put the waste into a container of Eco Enzyme liquid to make sure every bit of the waste has been soaked in the liquid. The liquid can then be reused many times. Although the Eco Enzyme can save money as a replacement for Bokashi Zing, I believe the Bokashi zing has a better effect on the plants we grow.*

What is eco enzyme?

Eco enzyme is a complex solution produced by fermentation of fresh kitchen waste (fruit and vegetable odds and ends), sugar (brown sugar, jaggery or molasses sugar) and water. It is dark brown and has a strong sweet sour fermented scent. Eco enzyme is a multipurpose liquid and its numerous applications include usages in homes, agriculture, animal husbandry and many other areas.

Eco enzyme is developed by Dr. Rosukon from Thailand. Dr. Rosukon has been actively involved in enzyme research for more than 30 years and she encourages people to make eco enzyme at home to ease global warming.

Eco enzyme DIY

Before you throw away fruit or vegetable odds and ends next time around, do remember to turn them into multipurpose enzyme solution – Eco Enzyme, an excellent household helper which is an effective household and laundry cleaner, air purifier, car wash cleanser and even organic fertiliser . It is easy to DIY fresh kitchen waste at negligible cost, producing effective multi-purpose solution that is useful and beneficial to the environment.



10 parts water
(fill up 60% of container)
eg: 6 litre water for
10 litre size container



1 part sugar
[= 10% water content]
eg. 600g sugar for
6 litre water



**3 parts
kitchen waste**
(fill up to 80% full)
eg. 1.8kg kitchen waste



**Close tight
keep 3 months
& filter**
(open daily to release
gases for 1st month)

Every time we choose to use cleaning products made with chemicals, we are polluting the underground water, rivers and the surrounding eco-system. Conventional cleaning products contain phosphate, nitrates, ammonia, chlorine and many other harmful chemicals. The accumulated effects of these chemicals that are released from every household contaminates the environment.

Let Eco-Enzyme be your best household helper. Discover the miracle of Eco-Enzyme. We can protect and care for Mother Earth from the kitchen by making and using Eco Enzyme.

All you need is an air-tight plastic container, sugar (brown sugar, molasses sugar or jaggery), and some water. Here's how:

- Prepare an air-tight plastic container. Do not use glass or metal containers that do not allow expansion caused by gas released during the fermentation process of enzyme.
- Dilute sugar in water, follow by adding your kitchen waste. Use only fruit and vegetable dregs. Avoid oily cooked food, fish or meat residues (make those your garden compost materials). To make fresh smelling enzyme, add orange/lemon peel or pandan leave etc.
- Leave some air space for fermentation. Make sure the container is air-tight.
- During the first month, gases will be released during fermentation process. Open the cap slightly to release the pressure built up in the container to avoid rupturing.
- Push the floating dregs downward every once in a while. Place at cool, dry and well ventilated area. Avoid direct sunlight. Let it ferment for at least 3 months before use. Filter and it is ready for use.

Take note!

Do not use glass or metal containers that cannot expand.

Garbage for making enzyme does not include paper, plastic, metal or glass materials.

Avoid oily cooked food, fish or meat residues (can be used as garden compost material). To make a fresh smelling enzyme, add orange/lemon peel or pandan leave etc.

The ideal colour of eco enzyme is dark brown. If it turned black, add in same amount of sugar to start fermentation process again.

It may have a white, black or brown layer on top of the enzyme, ignore it. If you encounter flies and worm in the container, leave it and the chemical reaction of enzyme will dissolve them naturally.

Make full use of eco enzyme residue:

- a) Reuse for next production by adding fresh garbage.
- b) Use as fertiliser by drying the residue, blend it and bury in the ground.
- c) Grind the residue, pour into toilet bowl, add some brown sugar and flush to help purify sewage.

If you have not gathered enough kitchen waste, you may fill up the container gradually. The 3 month fermentation period start from the day you place your last batch of kitchen waste.

The longer it takes, the better it gets. Harvested Eco enzyme will never expire. Do not store in the refrigerator.

If every household utilised their garbage to produce eco enzyme, it can stop kitchen waste from polluting our land and meanwhile ease global warming. You can help change the climate!

Benefits of Eco Enzyme

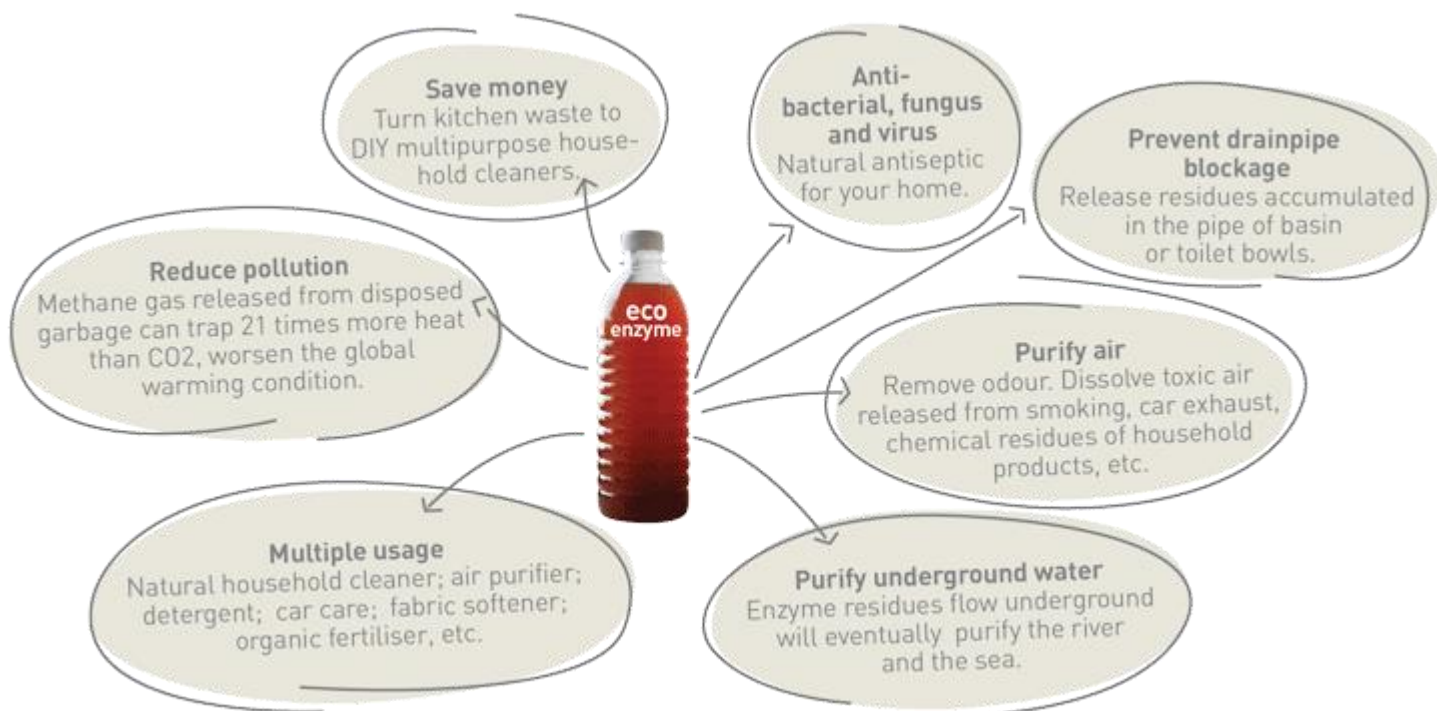
For gardening or farming: Natural insecticides, herbicides, pesticides and organic fertiliser. Can be used to stimulate plant hormone to improve quality of fruits and vegetables and to increase crop yield. Spray on land continuously for 3 months to improve soil quality.

Save on household cleaner and body care: For dish wash, laundry liquid etc: use enzyme to multiply and to reduce chemical residues.

Ratio = 1 part enzyme: 1 part detergent/cleaner: 10 parts water

Floor cleaning: Add 30ml (2 tbsp) enzyme to mopping water. To clean and sterilise.

Car care: Add 30ml (2 tbsp) enzyme to water tank to reduce car temperature.



DILUTION RATE	USAGE	QUANTITY	APPLICATION
Concentrated Enzyme	Washing machine (clean and soften laundry)	20-50ml	Soak and wash
	Toilet bowl (prevent blockage & purify sewage)	250ml	Pour and flush
	Toilet cistern (purify water)	20-50ml (two caps)	2-3 times/ weeks
	Garden pond & water tank (purify water)	1=10,000 litre water	Add occasionally
	Leather sofa (clean mold or stain)	Appropriate amount	Spray and wipe every 10 days
10-50 times	Carpet & tatami mat (deodorise & antiseptic)	Slightly moist	Spray 1-2 times/ month
	Shoe, inside the car (deodorise & antiseptic)	Appropriate amount	Spray occasionally
	Kitchen sink, stove, cookerhood (clean oily stain)	Appropriate amount	Soak and wipe occasionally
200-500 times	Black mold (antifungal)	Appropriate amount	Soak and wipe occasionally
	Pet excretion, pet house (deodorise & antiseptic)	Appropriate amount	Spray occasionally
	Air-cond room (humidifier, deodorise & antiseptic)	Appropriate amount	Spray occasionally
500 times	Bathroom sink (clean)	Appropriate amount	Soak and wipe occasionally
	Cabinet and refrigerator (deodorise)	Appropriate amount	Spray occasionally
	Drain (prevent drainpipe blockage)	Appropriate amount	Flush occasionally
500-1000 times	Pet (bathing, deodorise & antiseptic)	Appropriate amount	Upon bathing or brushing
	Toilet (clean, deodorise & antiseptic)	Appropriate amount	Spray when wiping
1000 times	Indoor (purify air, deodorise & pest control)	Appropriate amount	Spray frequently
	Closet, clothes (deodorise & antiseptic)	Slightly moist	Spray occasionally
	Seeding and planting (fertiliser)	Appropriate amount	Spray occasionally