



BIODIGESTER FOR HOUSEHOLD

&

COIRPITH COMPOST

Mitraniketan Core Support Project



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BIO DIGESTER POTS (HOUSEHOLD DUMP POTS)

Waste materials that can be decomposed by biological processes is known “Biodegradable waste”. Organic waste is biodegradable and recyclable. Bio Digester pots are easily adoptable for kitchen waste management at household level. It is suited for a family of 4-5 members, generating 1.5 - 2 kg waste per day.

Specification of the bio-digester pots

The pots are made in clay/terracotta and kiln dried in Pottery units. A unit consist of 3 set of pots which is to be kept vertically one above the other and the pot on the top is covered by a lid. The pot number 1 and 2 are kept at the top and middle position, both having 4 small round holes at the bottom for aeration and moisture control. Pot number 3 is for storing compost. All the three pots having holes on its sides for aeration. The maximum capacity of each pot is 5 kg. Cost of 3 pots is Rs.500 only.



Two sets bio digester pots (product of Mitraniketan Pottery unit)

Operation & Maintenance Protocols

- Fill the kitchen wastes in pot number 1 kept at the top (without onion peel and egg shells).
- Spread 15 gm composting inoculum and moist absorber when the pot is half filled
- When the top pot is fully filled, keep it in the middle and replace the middle one to the top and repeat the process of dumping the waste into the first and second in the same way.
- When the second pot is filled fully, the semi-decomposed waste of the middle pot (first one) can be stored into the bottom pot. Shift this emptied pot to the top position and the top pot to the middle position. Continue the same procedure of filling waste in the top one, keeping

- the second one for composting, and storing the compost in the bottom one.
- This cycle is to be continued until the 3rd pot is completely filled with the compost.
- When it is fully filled, it can be used as manure for home garden.

COIRPITH COMPOST

Coir pith (coir dust) is an unwanted material available in coir industries. This material is collected during the process of coconut (husk) fibre extraction and accumulated as hillock. If fibrous materials are present, it is removed by sieving at the source itself. It can be converted into nutrient rich organic manure by using mushroom spawn of pleurotus, which speeds up composting process of coir pith and leads to 42% reduction in volume of coir pith.



Method of composting of coir pith

The standard method of composting of coir pith is as follows:

- An area of 5x3 M is to be selected in a sheltered place to protect the heap from direct sun light and heavy rain.
- Spread 400 gm of fungus/ pleurotus on the coir pith over which 1 kg urea/fresh poultry liter is applied. This process of sandwiching the spawn of pleurotus and urea alternatively in 100 kg coir pith is repeated so that the heap reaches a height of one meter.
- To compost one ton of coir pith 2 kg mushroom spawn and 200 kg fresh poultry litter/urea are required.
- Water is sprinkled on the heap to ensure sufficient moisture.

Compost harvest

The material is ready to use as compost after 60 days. If the composition is not used immediately, it should be stored in a open, cool place to retain the moisture,

so that the beneficial micro organism present in the compost will not die. Once in a month, water is sprinkled over the compost material to maintain the moisture.

Nutritive value of raw and composted coir pith

Parameters	Raw coir pith (%)	Composted coir pith (%)
Lignin	30.00	4.80
Cellulose	26.52	10.10
Carbon	26.00	24.00
Nitrogen	0.26	1.24
Phosphorous	0.01	0.06
Potassium	0.78	1.20
Calcium	0.40	0.50
Magnesium	0.36	0.48
Iron(ppm)	0.07	0.09
Manganese(ppm)	12.50	25.00
Zinc(ppm)	7.50	15.80
Copper(ppm)	3.10	6.20
C:N ratio	112.1	24:1

Benefits of composted coir pith

- Improves soil texture, structure, soil aggregation, water holding capacity, cation exchange capacity, soil native microflora and tilth, sandy soil become more compact and clayey soil becomes more arable.
- The bulk density of both the sub surface (15-30 cm) soil is reduced to considerable extent with the application composted coir pith.
- Composted coir dust contains all plant nutrient elements and it can provide a supplemental effect along with inorganic fertilizers..
- Ammonification, nitrification and nitrogen fixation are increased due to improved microbiological activity.

Application of coir pith compost

- It is recommended that 5 tons of composted coir pith per hectare of land irrespective of the crop raised.
- It is advised that composted coir pith should be applied basally before take up the sowing.
- For nursery development in poly bags and in mud pots, while preparing the potting mixture 20 % of composted coir pith can be mixed with the soil and sand before filing it in the poly bag or mud pot.