**Use of vessels and polythene in mushroom cultivation**

**Vessels:** Plastic bags with filter patches are the main way that people grow mushrooms. Plastic bag is cheap, flexible and can withstand high temperature and pressure. However, these properties also make them a real problem for the environment as it takes an extremely long time to degrade. Thus, to avoid this problem people commonly grow oyster mushrooms in reusable buckets, as the substrates for oyster mushrooms can be pasteurised, rather than sterilised. Once the oyster mushrooms have fruited, the substrate can be composted and the buckets washed and then immediately refilled with new pasteurised substrates and spawn.

The vessels for mushroom cultivation needs to be-

* Able to be used multiple times before being replaced,
* Witthstand high temperature and pressure of autoclave or pressure cooker,
* Large enough to be economically viable, i.e. 2L as a minimum size,
* Easy to fill with substrate and to remove blocks from once colonised,
* Fairly low cost.

The best solution to above requirements are 2L and 3l cylindrical polypropylene storage containers that can withstand the temperature and pressure of the pressure cooker. Holes can be drilled in the tops for air exchange too.

Benefits of using these cylindrical containers are as follows-

* Reusable,
* Cost effective,
* Extremely easy to fill,
* Easy to stack and store,
* Easy to inoculate,
* Simple to fruit,
* Limited cleaning.

Other than buckets and polypropylene jars, monotub setup is a popular example for mushroom cultivation. It is basically a storage tub which has been modified to produce proper fresh air exchange. It is filled with an appropriate bulk substrate and then inoculated with grain spawn. It is reusable, stackable and gives high yield, but at the same time, can take up a lot of space and is not suitable for all species of mushrooms.

**Polythene bags:** Mushroom grow bags are an essential tool for cultivation. They can be used as spawn bags or for actual cultivation.

Mushroom grow-bags are actually gusseted, autoclavable, polypropylene filter patch bags. Gusseted refers to the way bags are folded; with the sides of the bags folded flat towards the inside, so that when folded it takes small space and can lay flat. Also during sterilisation cultivator can slip a filter between the gussets to prevent contamination from the air that enters the bag during post-sterilisation cool down.

The material should be polypropylene, which can withstand the pressure and temperature of an autoclave or a pressure cooker during sterilisation.

The filter patch of the bags allows for the mushroom cultures inside the bag to receive fresh air without passing contaminants like mold spores and bacteria. The filter size should range from 0.2 micron to 0.5 micron.

The bags are generally available in a variety of sizes. The size mostly depend on the amount of substrate or grain to be filled in the bag and the size of the steriliser. A bag of size 8 inches wide X 5 inches deep X 18 inches tall will comfortably hold 5 lbs of supplemented sawdust and grain spawn. 1-2 mils (1 mil= 25.4 um) thick bag is well suited to most situations.