

## Beehive Briquettes: An eco-friendly household fuel

Beehive briquettes are charcoal briquettes that are made of char by binding with mud. Usually, the briquette is circular 150 mm diameter, height of 85 mm having 21 holes of 12 mm diameter each. Due presence of the holes, it looks like a beehive; hence called, 'Beehive Briquette'.

### Making briquettes



**Fig. 1 Briquette Mould**

Charcoal is ground to a size less than 5 mm, and then, the mixture is mixed thoroughly with mud in a ratio of 75:25 by weight. Then, water is added to make the mixture of required consistency for moulding. A mould is a base plate of 21 pegs of 12 mm diameter each, is used to make beehive briquettes from the charcoal-mud mixture. Briquettes are sun-dried for 2-3 weeks, so that moisture content remains below 10 per cent.

### Making charcoal

Biomass such as pine litters, lantana, weeds from agricultural field and saw mill waste are used to make charcoal. However, wood can also be selected if the area is abundant with it. To keep moisture content below 20 per cent, biomass is sun-dried as much as possible because drying will



**Fig.4 Briquette charcoal**

help charcoal to get less amount of smoke. Further, to obtain better quality of charcoal, cutting of biomass into small pieces is considered as essential.

A drum-with a hole at the bottom, placing over a platform supported by a triangular shape three bricks arrangement- is filled by woody biomass at the bottom and the lose one at the top. After that, it is allowed to burn for an hour, or as long as white smoke oozes and transforms into grey or colour less smoke.

Then, the drum is covered with a lid, and is placed on the ground, the sides of which are also covered with soil. Finally, the drum is allowed to cool for two hours or more and whole of the biomass will turn into charcoal. Charcoal is crushed if size is too big. Locally available soil from any

agricultural field can be used as binder. It can be burnt in a locally available charcoal stove. It is ignited by putting a fire below the dry woods or paper. The fire takes 3-5 minutes to catch.

Once the briquette catches fire at the base, it spreads uniformly and propagates upward. While burning, it gives smokeless blue flame and burns for easily for three to four hours. As compared to wood and charcoal, emission of harmful gases- like carbon monoxide, methane and nitrogen dioxide- is lesser.

Its calorific value is as high as 19 MJ/kg. It is very low-cost as the main constituent 'char' is produced from forest or agricultural wastes by carbonizing into a low cost drum kiln.

Other input cost includes labour and mould. One person can make 200 briquettes a day at a cost of Rs. 5 to 7 per piece.

### Uses



There are multiple uses of briquettes: Cooking, heating and can be best done by this briquette.

In winter, it is used for space heating. By using a larger size stove, it can be used for boiling turmeric in turmeric processing or as a barbeque.

Moreover, it can be best fuel for rural household where, access to LPG and coal is limited.

**Fig. 3 Briquette Stove**

(Source: Sandip Mandal scientist Agriculture Engineering Division ICAR-Barapani  
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