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An Eco-Friendly Sustainable Cooling System Leads to Environmental Gain

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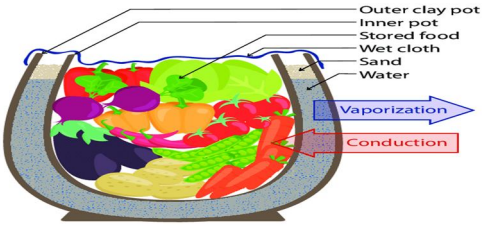
Abstract: ***Clay Refrigrator is a natural refrigerator made of clay that can store fruits and vegetables as well as cool water. Clay is used to make the clay refrigerator. A commodity that is respectful to the environment. It's essentially a clay refrigerator that keeps food fresh and cool without the use of electricity. It provides natural cooling without the use of electricity or other forms of energy, and therefore has no ongoing costs.***
Keywords: Clay, Refrigerator, eco-friendly, organic component, shelf life, ventilated space.

I. INTRODUCTION

The taste of fruits and vegetables is preserved in a clay refrigerator. When vegetables are stored in a Clay refrigerator, their shelf life increases by an average of 5 - 6 days. This refrigerator helps to keep fruits and vegetables fresh for up to a week. Clay has a natural cooling property, which has been effectively utilised in the creation of a Clay refrigerator. In this refrigerator, water is kept into a top chamber and a bottom half chamber that acts as the fridge. The water chamber seems to be what keeps refrigerator cool along with the particular clay that the fridge is made of.

II. PRINCIPLE OF EVAPORATIVE COOLING

The principle of refrigeration by evaporative cooling involves the storage space covered by a single layer of porous medium or a double layer of porous medium with evaporating liquid in between the layer. The opening of the refrigerator is either covered with a porous lid or wet cloths. When the refrigerator is exposed to dry air, the evaporating liquid (typically water) diffuses through the porous medium, reaches the exposed surface, and evaporates into the atmosphere. The thermal energy needed for evaporation is drawn from the storage room, which cools the refrigeration space.



III. FUNCTIONING

A. The fridge operates on the evaporation principle, with a small clay lid on top.
B. A small tap is provided at the front of the fridge to tap out the water that people may drink from, which drips down the side and evaporates from the porous clay surface, removing heat from inside and making the chambers cold.
C. A small tap is also provided at the front of the fridge to enable people to drink from the water. Two shelves in the lower chamber are used to store vegetables, fruits, milk, and other items.
D. When using the fridge for the first time, it can take up to 12 hours for it to reach maximum cooling power. It is naturally long-lasting and does not need replacement.
E. Keeping Clay's refrigerator in a cool place
F. Cleaning the outside of the fridge on a daily basis (every 2 to 3 days) will keep the pores open and aid in the evaporation process.
G. Clay Fridge's output is influenced by the outside temperature and humidity.
H. It performs well in hot and dry climates. To prevent breakage and fractures, it should be done with caution.
I. The Clay Fridge can be 8°C cooler than the outside temperature.

IV. BENEFITS

A. It is extremely beneficial because it conserves energy.
B. Can be used to store drinking water • Keeps fruits and vegetables tasting fresh
C. Fruits and vegetables can be stored in it for 3 or 4 days without losing their consistency.
D. Does not necessitate any form of upkeep.
E. It is eco-friendly, since it is made of clay and does not require electricity; it is also very cheap, making it a strong alternative to traditional methods.

V. OUTCOME TO ENVIRONMENTAL GAIN

A. No harmful refrigerant like CFC, primary refrigerant or any secondary refrigerants are used in this technology.
B. No loss to the Ozone layer of our earth's atmosphere.
C. MUD AC technology is also based on a soil cooling system and includes a bee hive structure. The air is naturally cooled when it moves through the water chamber, causing no damage to the atmosphere. In a mud air conditioning system, no heat is rejected to the environment.
D. A low-cost, environmentally sustainable method of preserving fruits and vegetables
E. Does not necessitate the use of electricity or any other form of energy.
F. Preserves the natural flavor of fruits and vegetables without causing them to spoil
G. A good and affordable choice for people in rural areas who cannot afford traditional refrigerators.

VI. CONCLUSION

1) Its efficiency can be increased by keeping this at good ventilated space.
2) Its effectiveness can also enhanced by keeping at dark and cold places.
3) This clay fridge maintains a minimum temperature of 20 degrees, which is ten degrees cooler than the ambient temperature.
4) "Our wellbeing is not adversely affected by our refrigerator. It is completely environmentally friendly.
5) And, unlike other refrigerators, it needs no maintenance.
6) Other clay items, such as clay cookers, clay biryani pots, handis, kadais, and water filters

A. Future Scope

Clay refrigerators are a form of natural refrigerator made entirely of clay that can be used to store vegetables and fruits as well as to chill water. It cools the stored material naturally, without the use of electricity or any other form of artificial energy. Fruits, vegetables, and milk can be kept fresh for 2 to 3 days without losing their quality or flavour. This clay cooler is a great way to keep your food cool.

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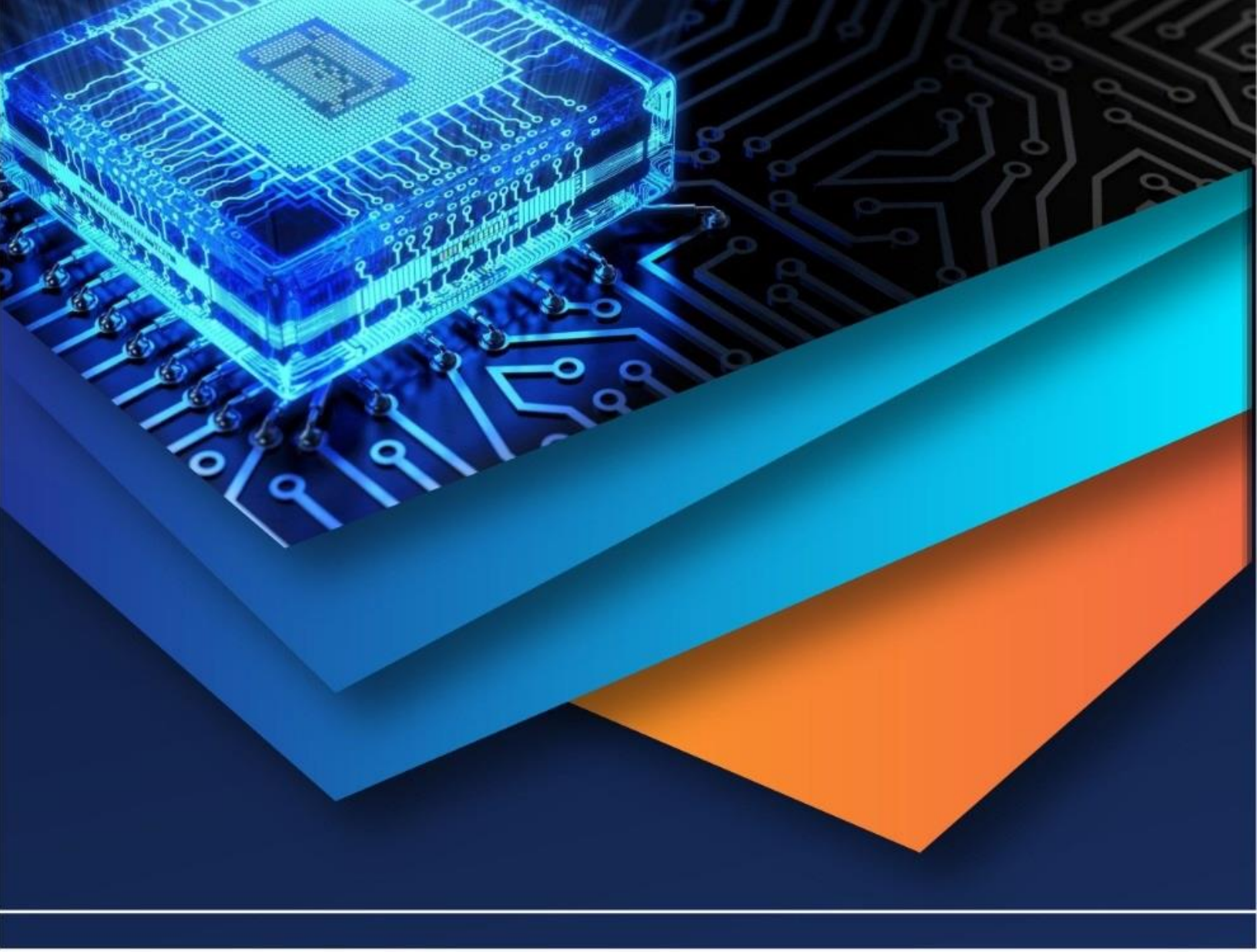

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