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LOW COST FILTER

Prof.Appa Kale[1], Prof.Ekta Dhande[2], Krushna Bhandwalkar[3], Sourabh Kabade[4], Rugved Holey[5], Govinda Ghodake[6], Vicky Kakad[7], Dipak Kokate[8]

ABSTRACT

About one-fifth of people on earth lack the access to safe drinking water.This condition that resulted in the death of 2.2 million people in 2014, as per the records of United Nations. Clean water use being a prime concern in many communities.Contaminated water plays significant role in taking numerous lives in these localities.For which a number of efforts are being made for accessing safe purified driking water.Fortunately, efficient and cheap water purification systems are being used and being tried to be accessed worldwide for easy access to clean water.

Keyword: Clean, Purification System, and water

I.INTRODUCTION

Purified water is essential for living a healthy life as such everyone should have access to it. Drinking water conditions have great impacts on people's everyday life, especially in the rural and remote areas where access to safe drinking water is very crucial. Surface water often is the only source, thus water contaminations are difficult to avoid due to rigorous and reckless use of surface water. Ultimately the aim of development of any low cost water filtration model should be to operate with minimum energy, minimum maintenance, cost effective, environment friendly, implementable with ease. This will subsequently inspire the people to put hygiene in to habit and of course will help in the social and economic growth of the country.

II.LITERATURE REVIEW

*Michael Henry,Siri Maley,Khanjan Mehta(Jan 2013) "*Designing a low cost ceramic water filter press**"** These filters work by using porous materials which allows water to flow through while restricting the passage of potentially harmful microbes. This filter removes the particulates and severe turbidity but it requires more frequent filter cleaning.

*Y.K.Siong, M.Atabaki, Jamaliah Idris(Jan 2013)"*Performance of activated carbon in water filter", Activated carbon is commonly used in water treatment to remove water contaminant from surface water and sub surface water. it is used in home water filtering system due to its excellent adsorption capacity.

*SJ.Haig,G.Collins, R.L.Davies, C.C.Dorea, C.Quince. "*Biological aspects of slow sand filtration: Past, Present and future."

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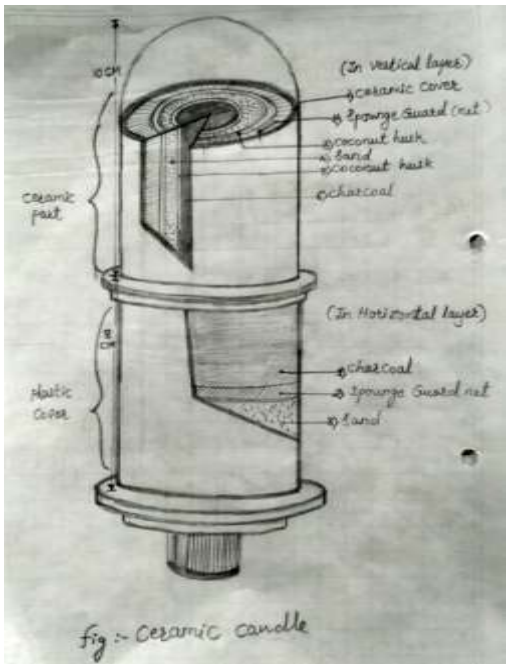
It is the energy efficient water treatment technology which meets stringent drinking water standards. it is used biologically meditate purification mechanism.

III.METHEDOLOGY

We divided the filter candle into two parts. Upper part consists of the vertically arranged layers of filter media as shown in figure. Upper part is consisting of a ceramic coating, covering an inner portion of vertical layers of sponge guard, coconut husk, sand, coconut husk and activated coal in a proper sequence. Lower part is consisting of plastic cover, in which horizontal layers of coal and sand separated by sponge guard are placed. Water enters the upper part in all directions. In upper part all the suspended solids along with other impurities are trapped. (70-75% impurities are removed) Remaining impurities are being removed in the lower part of the candle.



IV. MODEL INFORMATION

Total height of candle 18cm.

Height of upper part 10cm.

Diameter of candle 5cm.

Design of upper part:

Thickness of each layer which comes under the upper part.

Ceramic cover: 0.5cm.

Sponge guard: 0.5cm.

Coconut husk: 0.5cm.

Sand: 1.8cm.

Coconut husk for separation purpose: 0.2cm.

Activated carbon: 2cm.

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Design of lower part: Height of lower part: 8cm. Activated carbon: 4cm. Sponge guard for separation of layer: 0.5cm. Sand: 3.5cm

V.MATERIAL COLLECTION

1.Activated carbon

2. Sand

3. Coconut husk

4. Sponge guard skeleton

5.Ceramic powder

VI.EXPECTED OUTCOMES

1.Low cost filter is very useful for rural area. As no special treatment is used for the filtration purpose.
2. As name suggest the cost of filter is very low as compared to conventional filters.
3. As the materials used are naturally and easily available, so no special materials required.
4. Here no chemicals or other harmful ingredients were used for making filters, so it is ecofriendly.

REFRENCES

1. Michael Henry,Siri Maley,Khanjan Mehta(Jan 2013) "Designing a low cost ceramic water filter press".
2. Y.K.Siong, M.Atabaki, Jamaliah Idris(Jan 2013)"Performance of activated carbon in water filter".
3. SJ.Haig,G.Collins,R.L.Davies,C.C.Dorea,C.Quince "Biological aspects of slow sand filtration: Past, Present and future."