Recycling of Plastic Teacups and Thermocol (Environmental Pollutants) for Pot-Hole Filling, Construction Materials and Preservation of Biological Specimens

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Background

It is estimated that Bangalore alone generates 3,500 tons of wastage per day, of which plastics account for 700 tons, roughly 20% of the waste.

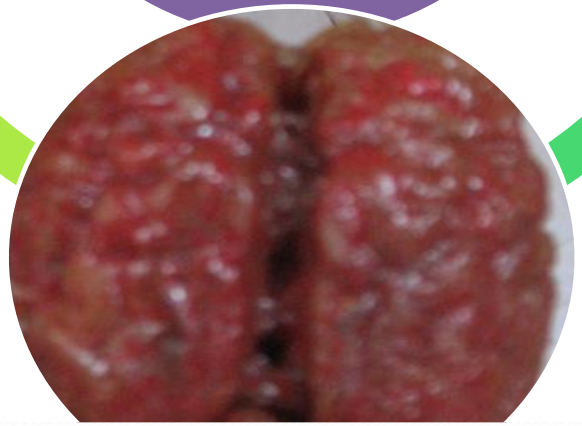
Of these, plastic teacups and thermocol are major components. These materials will be successfully recycled for the preparation of specimens thereby contributing in the reduction of environmental pollution.

Preservation of Biological specimens using 10% formalin which is a probable Group-I carcinogen.

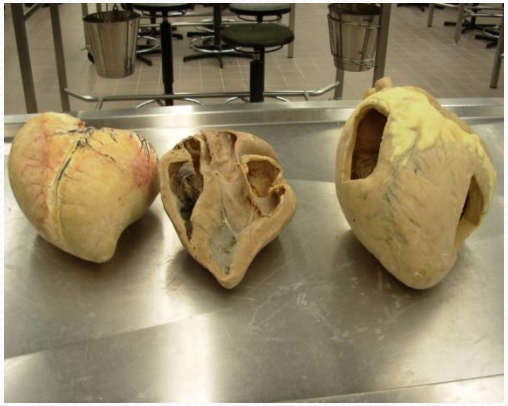
•Disadvantages of formalin specimen preservation

- Continuous requirement of formalin.
- Repeated requirement of specimens.
- Preparation of specimens and their storage.
- Replenishment of evaporated formalin.
- Purchase of glass containers to store organs.
- Man power required for embalming, dissection, labeling, mounting, storing, discarding the spent specimens
- ✓Plastination available in western world are economically not viable in developing countries. Urgent need to develop low cost method for preservation of biological specimens

Methodology



OUR TECHNIQUE v/s WESTERN TECHNIQUE



Social Impact:

Beautification of the city will be achieved by re utilizing the left over plastination solution to fill the pot-holes and to prepare the low cost construction materials. Low cost specimen preservation using environmental pollutants.

- ❖Reduce and eventually eliminate use of formalin, a known carcinogen with toxic effects.
- ❖Reduce the no. of specimens in veterinary and science colleges and no. of cadavers in medical colleges.
- ❖ By exhibition of plastinated specimens in schools will inculcate interest in the young minds to take up studies in the areas of biology.
- ❖The students can handle the biological plastinated specimens without fear and can shift them easily.
- ❖Long term storage and easy transportation without need of any specialized containers, formalin, exhaust hood etc.

Other Advantages of Plastination Technique

Proper utilization of left-over plastination solution to fill the pot-holes on the roads and to prepare low cost construction materials

- Bulk use of environment pollutants (Plastic Teacups & thermocol) helps in waste disposal which otherwise may contribute to global warming.

- Reduction in the number of animals used and in the health hazards of formalin usage.

- The human cadavers preserved through plastination reduces the requirement of cadavers.

Business model

- **Estimated market Potential of low cost plastination method in India.**

Institution	Number	Specimens	Rate/specimen	Market potential (Rs. crore)
Medical colleges	250	10 cadavers/year	Rs. 1 lakh	25
Veterinary Colleges	40	100 specimens/year	Rs. 10,000	0.4
Scientific institution	20	100 specimens/year	Rs. 50,000	10
Science Colleges (Bsc)	5000	25 specimens/year	Rs. 1,000	12.5
Higher secondary schools	Appro. 5 lakhs	10 specimens/year	Rs. 1,000	500

- **To achieve this target a minimum 15 years is required. However, this does not include export potential of plastination.**
- **To ship the materials to other developing countries probably it will be a life time activity for all the employees involved in plastination.**
- **The profitability may vary from 25-50% over the cost involved.**

✓ Outcome of the project:

Left over plastination solution can be reutilized for filling the path-holes in the city which in turn helps to increase the beauty of the city and to prepare low cost construction materials.

✓Development of a low-cost biological preservation technique by recycling environmental pollutants of hydrocarbon origin

✓Preparation of non-toxic specimens which can be easily handled without special apparatus or gloves and can be stored in the long term.

✓Mitigation of the hazardous effects of hard to

✓degrade plastics through their use as a specimen preservation material.

✓Generation of new employment and open up new industrial opportunities.

Patent status:

- Prior art search completed 14th June 2011. Published in official journal of patent- page no.7443 in 13/2013.

- Reply to the first examination report-11 January 2016.

- In the present status technology can be forwarded only with proper financial support through government support.

THANK YOU