

TEAM – 170



SAN ACADEMY, PALLIKARANAI

PROBLEM CHOSEN

“ALTERNATIVE FOR PLASTIC (BAGS AND CONTAINERS)”

STUDENTS NAMES

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LITERATURE REVIEW

In order to understand the real necessity for alternatives of plastics we started doing intensive literature search. The collated information was used to prepare a ppt which was presented among the other students to create awareness. Also to show them the alternatives with which they can replace the plastic materials.



GLIMPSE OF THE PPT

EFFECTS OF PLASTICS

- Plastic has toxic pollutants that damage the environment and cause land, water, and air pollution. It can take hundreds or even thousands of years for plastic to break down, so the damage to the environment is long-lasting.
- Burning of plastic in the open air, leads to environmental pollution due to the release of poisonous chemicals. The polluted air when inhaled by humans and animals affect their health and can cause respiratory problems.

TOXIC CHEMICALS RELEASED BY PLASTIC BURNING

BURNING OF PLASTIC IS DANGEROUS FOR YOUR HEALTH

Damage the nervous system
Disrupt endocrine system and provoke imbalance hormones
Provoke heart disease
Cause and aggravate respiratory diseases
Cause kidney & liver disease
Create skin rashes
Affect reproductive system

HEADACHE
STROKE
COUGH
ASTHMA
EMPHYSEMA
ALLERGIES
HEARTH ATTACK
FERTILITY

Modify DNA
Develop cancers
Affect immune system

RESIDUAL ASH IS TOXIC

Source: *Chem. Ind. (UK), WHO, EPA, Environ. J. Biol. Control*

Solutions

Plant-based plastics

Bioplastics are made from a variety of sources such as corn, which is broken down into PLA (Polylactide) or Polylactic acid. This is incredibly sustainable to produce, as it's made from the waste products from the production of corn - which is also easy to grow. PLA can be used to make drinks bottles, various food grade containers, as well as films. Eco-heroes are now making their bottles from 15% PLA.

Mushroom root

Mycelium (mushroom roots) are used in packaging. Agricultural waste is mixed with the mycelium in moulds and then the packaging

PLANT BASED



MUSHROOM ROOT



Corn starch /Potato starch/Tapioca starch and sorghum loose fill

Corn starch can be used the same way as regular polystyrene loose fill. This eco version - which can also be made from sorghum (a crop similar to popcorn) - is biodegradable, odour free, and maybe best of all, static-free!

POTATO STARCH



TAPIOCA STARCH



CONTAINERS WITH COCONUT SHELL

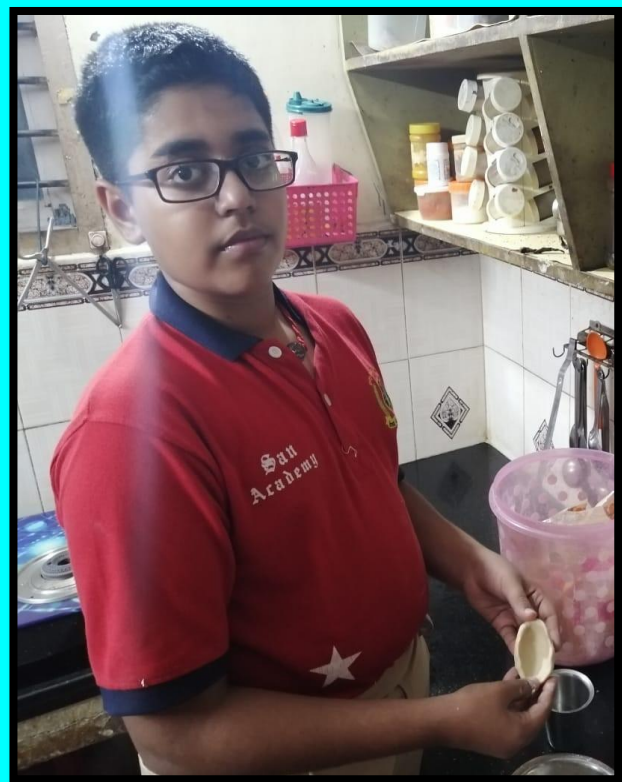
As part of the project students started their hands training in making containers with coconut shell. The same was explained and demonstrated to students in creative arts club.



BIODEGRADABLE SPOON (EDIBLE SPOON)

| S.NO | INGREDIENTS: |
|------|-------------------------|
| 1 | ATTA FLOUR |
| 2 | FLAVOURING |
| 3 | A STAINLESS STEEL SPOON |

| S.NO | PROCEDURE: |
|------|---|
| 1 | TAKE A PACKET OF ATTA AND STIR IT WITH WATER SO THAT IT GETS LIKE DOUGH |
| 2 | TAKE THE DOUGH YOU MADE AND CUT IN A SHAPE OF SPOON SLIGHTLY BIGGER |
| 3 | NOW KEEP IT IN THE SPOON YOU HAVE AND MOULD IT AND CUT THE EXTRAS |
| 4 | POKE HOLES IN THE DOUGH SO IT CAN BE BAKED EASILY |
| 5 | KEEP IT IN THE OVEN FOR ABOUT 15 MINUTES |
| 6 | NOW TAKE THE SPOON AND ADD ANY FLAVOURING SUBSTANCE IN THE THE SPOON IN A WET CONDITION |
| 7 | AGAIN KEEP IT IN THE OVEN FOR ABOUT 15 MINUTES |
| | SO THE EDIBLE SPOON IS READY!!! |



CLOTH BAG



IMPACT

As a result of the awareness created students took plastic pollution and their alternatives as their project topics and exhibited their work as a display model I the schools project expo. Where the bio plastics made from corn starch , orange peel containers, biodegradable buttons grabbed the attention of the visitors.

Materials for bioplastic:

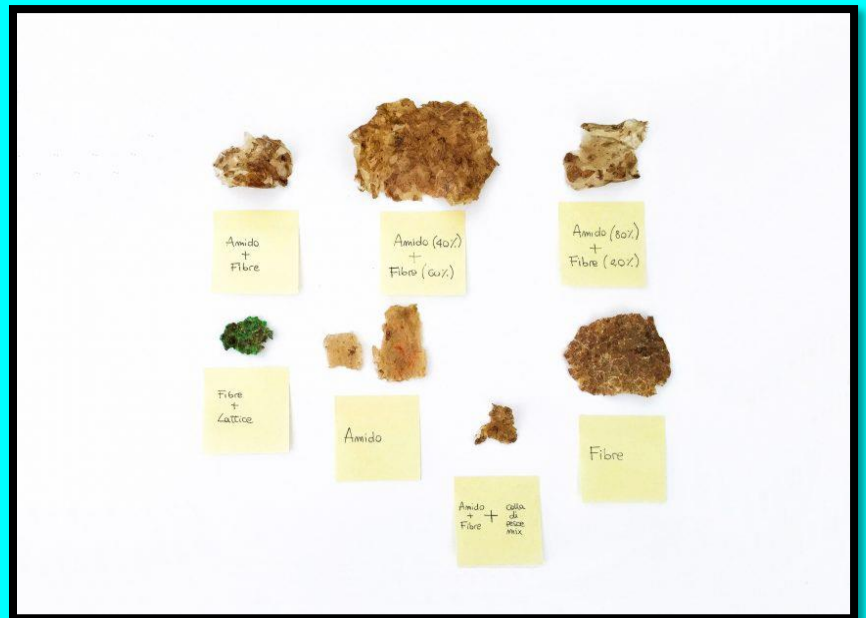
- 1) Corn starch 10g
- 2) Water 50ml
- 3) Vinegar 5ml
- 4) Glycerin 5ml
- 5) Food dye (optional)
- 6) Beaker
- 7) Stirrer
- 8) Protractor
- 9) Lighter
- 10) Bunsen Burner
- 11) Baking Paper



ORANGE PEEL PLASTICS



POTATO PEEL PLASTICS



AT THE EXPO

