

1. **Title:** Color Preparation from Natural Resources: Conservation of Traditional Knowledge.
2. **Applicant's Name:** Shyampur Siddheswari Mahavidyalaya
3. **Inventors:** Sridipta Manna, Saheli Guria, Labanya Dalapati, Prosenjit Dawn
4. **Field of Innovation:** Use of Bio-resource in Organic Products for conservation of traditional knowledge
5. **Background:** Colors always take a special place in our lives, stimulating creativity and enhancing our surroundings. While synthetic dyes and colors dominating the market, natural colors offer a captivating alternative. Synthetic colors and all the processing used in general dyeing is harmful to our health. But the colour from natural sources can reduce the risk of synthetic colors.

Extracting pigments from natural resources allows us to tap into nature's vibrant palette and create eco-friendly, non-toxic colors.

For paintings natural colors can be used as coloring materials, even long ago the ancient and tribal people used natural resources for painting their walls. Painting on walls from different sources of natural colors in their unique folk artforms was the tradition of different tribal and folk people. Apart from this, natural colors can also be used in food, textile, medicine, handicraft articles, leather processing etc. The natural colors can be easily extracted from different flowers, leaves, fruits, tree barks, roots, stones, soils, charcoal etc. The main motive of this innovation is to increase the use of eco-friendly and harmless natural colors, rather than the harmful synthetic colors.

6. Objectives of this Project:

- To bring more eco-friendly Natural colors for paintings, food colors, textiles etc.
- To reintroduce the tradition of natural color paintings of our country's different tribal and folk peoples.
- Decrease the use of harmful synthetic colors.
- Management option for invasive plant species such as *Mikania* sp.

7. Summary:

Sources for Natural colors: There are many kinds of sources. But here are some of them that we experimented with.

- Turmeric and yellow marigold for yellow color.
- Green leaves of for green color.
- Beetroot, hibiscus for purple color.
- Orange marigold for orange color.
- Aparajita for blue color.
- Rice flour, khori mati (type of soil) for white color.
- Giri mati (type of soil) for brown color.
- Charcoal, lampblack for black color.
- And some elements also change their colors with the reaction of lemon or baking soda.

Color extraction method:

- Elements taken from the plants, like flowers, leaves, roots were gently washed to remove any dirt or impurities.
- Carefully separated the leaves from the branches, petals from the flowers, discarding the stems and other plant parts.
- The elements were placed in a mortar and pestle or blender to crush them into a pulp. This helps to easily release the pigments from the elements.
- Placed the crushed elements into a container and added water, ensuring that they are fully submerged. Gently stirred the mixture to facilitate color transfer from the elements to the medium.
- Then heated the crushed elements with water on low heat for a specific duration to enhance color extraction. But in the case of leaves, heating isn't required. After mixing the crushed leaves with water, the pigments are extracted.
- Then strained the mixture to separate the liquid extract. Used a fine and clean cloth to filter out any solid particles, ensuring a smooth and pure color extract.
- And finally mixed the extract with some drops of natural gums like Gum arabic, gum of wood apple etc. for thickening and preserving the color.
- For the rice flour, khori mati or giri mati, at first crushed it into dust then mixed some water with these.
- And for black color mixed some coconut oil with charcoal or lampblack.

8. Claims:

- This project is environment friendly, products are biodegradable, non-toxic, less-polluting.
- This is an economical and cost-effective project.
- Less available in market.

9. Pictures:



Fig 1: Natural colors and their applications.



Fig 2: Processed colors and their resources.

Fig 3: A painting painted by Natural colors.



Fig 4: The food colors of this cake made from natural elements.

10. Signature of all applicants.

Srisipta Manna .

Saheli Gupta .

Labanya Dalapati

11. Signature of Mentor:

Prosenjit Dasg