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TANNIN EXTRACTION FROM MANGROVE PLANT AND ITS USE AS NATURAL COLOR

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ABSTRACT

Tannins are naturally occurring plant polyphenols and are widely distributed in the plant kingdom. Coastal region of India is very rich ecosystem of Mangrove. Along with biodiversity mangrove plant itself is useful for various purpose; such as synthesis of nanoparticles, extraction of Tannin. In this research work extraction of Tannin was done by various parts of mangrove plant; such as bark, leaf, fruit, flowers, roots etc. From which extraction of tannin was done successfully by bark of mangrove plant. Further the extracted tannin was used as a natural color component.

KEYWORDS: Tannin, Mangrove, Natural color.

I. INTRODUCTION

Mangrove ecosystem has biogeochemical, ecological, and economical importance. The bark is either smooth or rough with varying degrees in each class. Tannin is a general term for a widely occurring group of substances of vegetable origins. It is a light to brown amorphous granular powder with the chemical formula C76H52O10, which decomposes at 210 ^{o}C -215^{o}C.

Various uses of tannins have been identified such as, in aqueous solution for treating burns and protecting plant against dehydration and damage by animals; as mordents on dyeing etc.

2. MATERIAL AND METHODS

Plant material

Plant materials were collected from local mangrove ecosystem of Ratnagiri, Maharashtra, India. Various parts of plant were collected viz. leaves, roots, flowers, bark, fruit etc. of mangrove plant.

Fig. Mangrove (*Sonneratia*) fruit.

Fig. Mangrove bark from Mangrove tree (Genus:- Sonneratia).

Extraction method: Tannin was extracted from mangrove plant parts (leaves, roots, flowers, bark, fruit etc.) by traditional extraction method. Plant materials were freshly collected, and washed with distilled water. Sundried for 7 days. Dried plant parts were added to distilled water in 1:6 (w/v) proportions. Solution boiled till it turns dark red in color. After heating is over, the bark that settles at the bottom of the container was removed. The extract obtained was cooled and centrifuged for several times, so as to get precipitate form of tannin. Precipitate was air dried to form powder. This powder form of naturally extracted tannin were used as natural coloring agent for the preparation of crayons.

Fig. Extraction method of tannin.

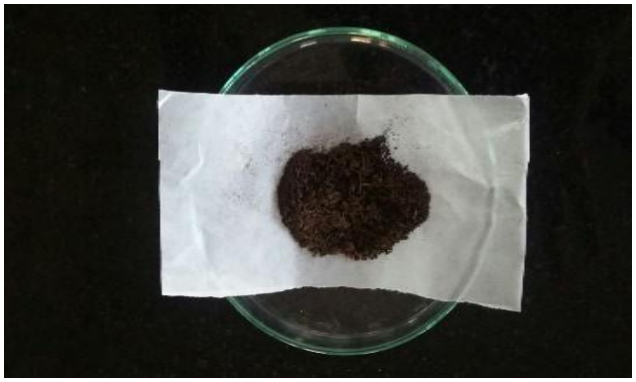

Fig. Powdered form of Tannin.

Fig. Crayons Prepared by Tannin.

3. RESULT AND DISCUSSION

The establishment of color industry requires sufficient and cheap source of color in order to reduce the costs of production that has been recognized as a critical point.

In this investigation attempt was made to extraction of tannin with mangrove plant parts by conventional method. The various parts of mangrove plant were used for the extraction process like leaves, roots, flowers, bark, fruit .From which bark shows higher content of tannin as compare to other parts of plant.

The dried form of tannin was then used successfully as coloring agent in crayon preparation. As India is rich in mangrove ecosystem various extraction methods can be used in future so as to improve the economic status of color industry.

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