

# Formulation and Evaluation of Sugar Cane Wax Based Lipstick

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## ABSTRACT

Press mud is a rejected waste material of sugarcane industries causes the problem of pollution to the surrounding of sugar mills on its accumulation. Present work deals with the development of the method for the isolation and analysis of wax from press mud waste of the sugar industries. The crude wax is extracted by using toluene and benzene solvents and pure wax is obtained by giving the treatment of isopropyl alcohol. The physicochemical testing was carried out for characterization of isolated micro wax. The yield of wax found from toluene solvent was 2.40 % - 3.60 % and from benzene solvent was 3.9 % - 4.4 %. The color of crude wax was brownish-green while the pure wax was light yellow in color. The preparation of this lipsticks with natural ingredients like Olive oil, cetyl alcohol, carnauba wax, sugarcane wax. Due to various adverse effects of available synthetic preparation, the present work was conceived by us to formulate a sugarcane wax-based lipsticks having minimal or no side effects which will extensively be used by the women of our communities with great surety and satisfaction.

**KEYWORDS:** Sugar industries, Press mud, Toluene, Benzene, Lipstick

## INTRODUCTION

In India, Sugar industry with 400 Sugar factories ranks as the second major agro-industry in the country. The sugarcane industry has several co-products of immense potential value.

The co-products include press mud (filter cake), molasses and spent wash. Out of which press mud is produced during clarification of sugarcane juice. About 3.6 - 4 % of sugarcane crushed end up as press mud i.e. 36 - 40 kg of press mud is obtained after 1 ton of cane crushing. Press mud is a soft, spongy, amorphous and dark brown material containing sugar, fiber and coagulated colloids including cane wax, albuminoids, inorganic salts and soil particles. It consists of 80% water and 0.9 - 1.5 % sugar, organic matter, nitrogen, phosphorus, potassium, calcium, sulphur, coagulated colloids and other materials in varying amounts. Press mud like other organic materials affects the physical, chemical and biological properties of soil [1] However, due to its bulky nature and wax content, it causes some problems. If press mud is directly applied to soil as manure, the wax present might deteriorate the physical properties such as permeability, aeration, soil structure and composition etc. and with the passage of time the deterioration might get worsen. Therefore, extraction of wax from press mud will be helpful to enhance the quality of press mud as organic manure. Sugarcane wax has been chemically defined as a complex and variable mixture of long chain alkanes, hydrocarbons, fatty acids, ketones, aldehydes, alcohols and esters. and steroids such as sitosterol, stigmaterol, ketosteroids and hydroxyketo steroids is the whitish to dark yellowish powdery deposit on the surface of the stalks of the sugarcane, *Saccharum officinarum* L. Hydrocarbons having chain lengths of C 18 to C 32, wax acids having chain lengths

of C 18 to C 32,  $\omega$ -hydroxycarboxylic acids and aromatic carboxylic acids. Also, fatty alcohols (wax alcohols) and diols are alcohol components. Besides that, about 5 to 10 % consists of unesterified diols, long-chain wax acids such as behenic, cerotic, lignoceric or melissic acid and saturated hydrocarbons [4-6] Untreated sugarcane wax contains up to 25 % of resin and moreover, up to 60 % polycosanol (octacosanol) which can be extracted from sugarcane wax in the pure form.

Lipstick is a cosmetics product containing pigments, oils, waxes, and emollients that apply color, texture, and protection of the lips. Lipstick contains wax, oils, antioxidants, and emollients. Wax provides the structure to the solid lipstick. Lipsticks may be made from several waxes such as beeswax, ozokerite and candelilla wax. Because of its high melting point, carnauba wax is a key ingredient in terms of strengthening the lipstick. Various oils and fats are used in lipsticks, such as olive oil, mineral oil, cocoa butter, lanolin, and petrolatum. Cream lipsticks contain more waxes than oils. Sheer and long-lasting lipsticks contain more oil, while long lasting lipsticks also contain silicone oil, which seals the colors to the wearer's lips. Glossy lipstick contains more oil to give a shiny finish to the lips [2].

## MATERIALS AND METHODS

Olive oil, cetyl alcohol, carnauba wax, sugarcane wax, lanolin, Sodium lauryl sulfate. Extract of glycyrrhiza glabra

(ethanolic) was obtained from the laboratory. Press mud waste was collected from four sugar industries from Satara district namely Ajinkayata co-operative sugar mill, kisanveer satara sahakari sakhar karkhana

#### Extraction Procedure:

Sugar cane press mud was kept for drying in an oven at 60°C for 12 hours [overnight]. The dried press mud of sugar cane was ground using the mixture to form a crushed powder. This crushed powder was then poured into soxhlet assembly with the addition of benzene and toluene solvent as 1:1 proportion and was kept for extraction for 6 hrs. The extract was filtered under mild vacuum and solvent recovery by distillation. After recovery, the solvent solid mass containing wax mixture and resin was obtained and this mixture was dissolved in hot isopropyl alcohol and filtered. After that, the resin proportion was separated and the total wax portion obtained which was light creamish in color



Fig no.1- Soxhlet assembly

#### Formulation of sugarcane press mud wax-based lipstick:

The sugar can wax-based lipstick was formulated as per the method described. The ingredients of lipstick are Olive oil, Cetyl alcohol, Carnauba wax, Sugarcane wax, Lanolin, color, Antioxidant, Perfume.

INGREDIENTS	F-1
	Quantity in (gm)
Olive oil	6.5
carnauba wax	2
sugarcane wax	1.5
Lanolin	2
Cetyl alcohol	0.5
Organic colour	1ml.
Rose essence	0.01ml

Table no.1:-Ingredients with their prescribed quantity in the formulation of lipstick.

#### PROCEDURE: -

Colour paste was prepared by using olive oil and organic color. All the waxes like a carnauba wax, sugarcane wax were arranged in the increasing order of their melting point. Waxes were melted and the color paste along with the lanolin was added in the melted wax melting point. After lowering the temperature perfume were added in the mixture. This molten mass was poured in a pre-lubricated

mold and kept in the refrigerator for 15 minutes of lipstick were removed from the molds and fixed into the container.

#### Evaluation of sugar cane press mud wax-based lipstick:-

##### ➤ Melting point

Determination of melting point is important as it is an indication of the limit of safe storage. The melting point of formulated lipstick was determined by capillary tube method, the capillary was filled and kept in the capillary apparatus and firstly observed the product was slowly-slowly melted. After sometimes observed product was completely melted. The above procedure was done in 3 times and the melting point ratio was observed in all formulation.

##### ➤ Breaking point

The breaking point was done to determine the strength of lipstick. The lipstick was held horizontally in a socket inch away from the edge of support. The weight was gradually increased by a specific value (10gm) at a specific interval of 30 second and weight at which breaks was considered as the breaking point.

##### ➤ Force of application

It is tested for comparative measurement of the force to be applied for application. A piece of coarse brown paper kept on a shadowgraph balance and lipstick was applied at 45° angle to cover a 1 sq. Inch area until fully covered. The pressure reading is an indication of the force of application.

##### ➤ Surface anomalies

This was studied for the surface defects, such as no formation crystals on surfaces, no contamination by molds, fungi etc.

##### ➤ Aging stability:

The product was stored in 40°C for 1 hrs. Various parameters such as bleeding, crystallization of on surface and ease of application were observed

##### ➤ Skin irritation test

It is carried out by applying a product on the skin for 10 min.

##### ➤ Perfume stability

The formulation of herbal lipstick was tested after 30 days, to record fragrance.

#### RESULT AND DISCUSSION:

##### ➤ Recovery of wax from press mud by using toluene and benzene

Toluene and Benzene have been used as a solvent for extraction of press mud for isolation of wax. Organic solvent extraction is the most common and most economically important technique for extracting aromatics. There are different solvent used for extraction of wax but pure toluene is an excellent oil solvent and has good solvent power for wax extraction as well. A crude wax extracted with benzene was used for the entire investigation. A further consideration was that benzene extraction appeared most feasible for commercial-scale production.

##### ➤ Lipstick:

The lipstick composition prepared using sugarcane wax were evaluated for color, skin irritation test, melting point, force application, breaking point, perfume stability.

Evaluation parameter	F1
Color	Faint pink
Skin irritation test	No
Melting point	64-67
Breaking point	30
Force application	Good
Perfume stability	++
Surface anomalies	No defect
Aging stability	Smooth

**Table no.2: -Evaluation Table of Sugar Cane Wax Based Lipstick**

### CONCLUSION:

Press mud is a byproduct of sugar industries. Sugarcane press mud is easily available and cost-effective than other sources of wax. Extraction of wax from press mud carried out within the 6 to 7 hours hence it is a less time-consuming process. These waste products are used as fertilizer in the agriculture field, but the presence of sugar cane wax in press mud deteriorates the physical property of soil and therefore the extraction of wax is necessary. This extracted wax has several applications in various industries which can bring products in the national and international market. This study revealed the presence of many classes of compounds like alkane, ester, alcohol, fatty acids, and so forth present in sugarcane press mud wax. The major component of wax, that is, sec-butyl isothiocyanates which has many beneficial effects can be utilized for medicinal purpose and can be used as a flavouring agent in lipstick. Apart from medicinal, semiochemical and nutritional applications, wax can be used in food preservation as an edible coating for fruits and vegetables. Thus, sugarcane wax has many compounds of biological and industrial importance.

### REFERENCES:

- [1] Bhosle. P. R., Raut. P. D. Department of Environmental Sciences, Kolhapur, Journal of Environmental Research & Development, Vol.No.6 3A, 2012.
- [2] Inarkar. M. B. & S. S. Kale, Department of Food Technology, Vol.2012.
- [3] Paturau J. M., 1989. By-products of sugarcane, industry: An introduction to their industrial utilization in America, 3rd Edn. Of Standard textbook *Elsevier, Amsterdam*, 274.
- [4] Albin H. Warth. The Chemistry and Technology of Waxes". 1956, Seite735-737
- [5] Forman-Brunell, Miriam. *Girlhood in America: An Encyclopedia*. Santa Barbara, California: ABC-CLIO, 2001.
- [6] Swati Deshmukh, Manisha Chavan, Alard College Of Pharmacy, Marange, International Journal Of Pharma and Bio Sciences, 2013 July: 4[3]: [p] 139-144, ISSN 0975-6299.
- [7] Farida Hayati and Lutfi Chabib, Pharmacy Department, Indonesia, International Journal Of Pharmacy and Pharmaceutical Sciences, ISSN 0975-1491.
- [8] Harry. G. Ralph, The Principle and Practice Of Modern Cosmetics, Leonard Hill Books and Inter Text Publishers, 2005-P
- [9] Jain. S. K. and Sharma .N.K.A Text Book Of Pharmaceutics, VallabhPrakashan, 2005:127-172.
- [10] Nadkarni. A. K. India Materica Medica, 3<sup>rd</sup> edition. Vol.2, Popular Prakashan, Mumbai 1975
- [11] Rajesh Kumar Nema, Bal Krishna Dubey. Text of Cosmetics. 1<sup>st</sup> edition. New Kadu. M. Singh. S. Review on natural lip balm. International Journal of Research In-Cosmetics Science, 2015: 5 [1] :1-7.
- [12] Mohmad. S. yob A. Journal of Tropical Resources and Sustainable Sciences. 2015:3:61-67.