



## Formulation and Evaluation of Herbal Sindoor Using Different Natural/Herbal Ingredients

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### Research Article

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### Abstract

Sindoor is one of the key cosmetics used by the married women of our countries. In present days the use of such product has increased and choice of shades of color and texture have been changed and become wider. The present investigation was done to formulate herbal sindoor using different natural ingredients, as these preparations are one of the key cosmetics to be used by the married women of our country. The sindoor was formulated using five different natural coloring agents in four batches (F1 to F4) and were evaluated. It was found from the present investigation that F3 has good results as compared to other formulated herbal sindoor, though a detailed clinical efficacy is still needed to establish safety profile of the formulation.

**Key words:** Cosmetics, Herbs, Herbal Sindoor, Natural Coloring agents

### INTRODUCTION

Now-a-days, in the whole world there is turn to return towards the use of herbal products and to adopt more natural way of life, people prefer natural food, herbal medicines and natural curing practices for healthy life. There is much craze for the vegetable products cultivated through biological/organic farming without using synthetic fertilizers and pesticides. The usage of herbal cosmetics has been increased to many folds in personal care system and there is a great demand for the herbal cosmetics. All this happened due to the excessive use of synthetic based products, synthetic chemicals, chemical dyes and their derived products in the last one and half century, their production and usage cause human health hazard with several side-effects leading to numerous diseases.<sup>1-2</sup>

Skin disease is a common ailment of all age groups because of the infection of a variety of microorganism, chemical agents and biological toxin present in the atmosphere and also due to physical factors, malnutrition and environmental pollution. Similar problems occur with hair as hair fall and their graying at early age becomes a general feature. There are immense opportunities to use phytochemicals ingredients in the cosmetics for the skin and hair care in accordance with the principles of both cosmetic preparation and traditional systems of medicine.

Every individual has his own choice and liking for color and nature manifests itself in a wide spectrum of colors. Colors are well known since ancient time for coloring cloths, consumer articles and food. Addition of colors in consumer products significantly enhances the general appearance of products. The cosmetics products are generally colored by synthetic or natural coloring agents. In herbal-based cosmetics, there is a trend to use natural coloring agents because of their safe, non-toxic and eco-friendly characteristics.<sup>3-5</sup>

In India, sindoor is an important cosmetic item for married women, worship and other purposes. Prolonged use of synthetic dye-based sindoors has shown symptoms of hair loss, graying of hair, edema, erythema and even skin cancer. In view of



above scenario, a process technology has been developed to produce an alternative, safe, non-toxic, eco-friendly natural dye-based sindoor. The process is novel as pharmaceutical/food grade natural ingredients are used as bulking/filler materials and no salt of any heavy metals are used. The process provides an opportunity for the preparation of different shades of sindoor like orange, red, dark red, mehroon, etc., using different dyes and their blends.<sup>6-7</sup>

Due to various adverse effects of available synthetic preparation the present work was conceived by us to formulate a herbal sindoor having minimal or no side effects which will extensively used by the women of our communities with great surety and satisfaction.

## MATERIAL & METHODS

Following methods were adopted by the authors during the course of present investigation.

### Selection of herbs

The various herbs used in the formulation of herbal sindoor were selected on the basis of literature survey.<sup>8-10</sup>

### Collection and authentication of herbs of plant material

The different herbs used in formulation were collected in the months of August 2011 from the local markets of Ujjain district and were deposited in our department.

**Table 1: Ingredients with their prescribed quantity in the formulation of herbal sindoor**

S/No.	Ingredients	F 1	F 2	F 3	F 4
1.	Turmeric	12.75	1.5	2.6	8
2.	Beet Root	8	12.75	1.5	2.6
3.	Cutch	2.6	8	12.75	1.5
4.	Red Ochre	1.5	2.6	8	12.75
5.	Sandal Wood	0.5	0.5	0.5	0.5
6.	Distilled Water	qs	qs	qs	qs

Abbr.: q.s. = quantity sufficient, Note: Composition for 25 gm strength

### Formulation of herbal sindoor

The crude drug was finely powdered by using grinder and passes them by fine mesh sieve. The powdered form of drug was then mixed and thick slurry was made by mixing the water in it. Blending of slurry was done by using stirrer to obtain a liquid colored paste. In some batches the water was remained in slurry, therefore, it was filtered and evaporated till dry powder of paste was obtained.<sup>10</sup> Powder obtained was then pulverized to fine powder to get herbal sindoor and was then mixed with fragrance. All the ingredients are taken in definite ratio and 4 formulations [F1 to F4] were prepared, Table 1

### Evaluation of herbal sindoor<sup>11-12</sup>

It is very essential to maintain a uniform standard for herbal preparation, keeping this view in mind the formulated herbal sindoor was evaluate.

**Solubility:** Specified amount of sample was taken in test tube and was added with different solvents to determine the solubility profile of formulated preparation.

**Angle of Repose:** Angle of repose was determined using the funnel to estimate the flow behavior of the sample. It was determined by using the formula.

$$\tan \alpha = H/R$$

where,  $\alpha$  = angle of repose, H = height of the pile of powder, R = radius of the pile of powder.

**Sensitivity:** Small amount was sample was applied on forehead to check irritation effect.

**Color Change:** The samples were kept for 7 days to note out the color changes.

**Water Washability:** Small amount of sample was applied in the hand for few minutes and was washed with water to observe the washability.

**pH:** The pH of formulated herbal sindoor was determined using pH meter.

## RESULTS & DISCUSSION

In earlier times, women preferred to prepare sindoor at home. Now, most of them buy the readymade sindoor from the market. A traditional component of the sindoor is powdered red lead and other ingredients are alum and turmeric. Another custom followed by married Hindu ladies of the

country is to wear a bindi on their forehead. At times women apply a sindoor dot instead of the bindi. Traditional authentic sindoor of India is made by grinding the dried turmeric to a powder. A few drops of lime are then added to this yellow powder, which changes its hue to a bright red. Sindoor is considered to be very auspicious by Indians and thus, used for various purposes on special occasions like wedding and festivals. The sindoor prepared above having the base materials which are of the natural herbal sources. No salt of lead and mercury or any heavy metals have been used. The use of the very fine powder form of crude material provides a better formulation. The combination of all provides a powder material having soft and supple touch with good sticking capacity to skin. The market samples showed itching and redness of forehead skin. In synthetic sindoor, there was deep penetration of the red mark which was not washable by water. It provides an option to replace synthetic dye and heavy metal's salt based sindoor by natural ones, which is safe, stain-free and eco-friendly. The powder provides a synergistic mixture of coloured

**Table 2: Evaluation of formulated herbal sindoor (F1 to F4)**

S./No.	Evaluation Parameters	F 1	F 2	F 3	F 4
1.	Solubility				
	Water	Insoluble	Insoluble	Insoluble	Insoluble
	Ethanol	Insoluble	Insoluble	Insoluble	Insoluble
	Chloroform	Insoluble	Insoluble	Insoluble	Insoluble
2.	Angle of Repose	30.96	25.64	30.11	33.42
3.	Sensitivity	Not Sensitive	Not Sensitive	Not Sensitive	Not Sensitive
4.	Color Change	Observed	Not Observed	Not Observed	Not Observed
5.	Water Washability	Washable	Washable	Washable	Washable
6.	pH	7	8	7	7

dry powder which has good sticking capacity to skin and can be easily removed by mop or water washing. The prepared formulation (Table 1) was evaluated (Table 2) and it was found that the F3 (Fig. 1) was best among the four formulations. Hence, from present investigation it was concluded that this formulated herbal sindoor has better option to women with minimal side effects though a detailed clinical trials may be done to access the formulation for better efficacy.

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### AUTHORS' CONTRIBUTIONS

Authors contributed equally to all aspects of the study.

### PEER REVIEW

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### CONFLICTS OF INTEREST

The authors declare that they have no competing interests.