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RESEARCH ARTICLE

A Research on the physico-chemical aspects of commonly used Herbal Hair oil preparations

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Abstract
Hair are the appendages from the body which are protective in nature. It is derived from the ectodermal layer of the skin. It consists of three zones: cuticle, cortex and medulla. Keratin is a collagenous protein that makes hair. Melanin is the principle pigment responsible for the colour of human hair. Hair nourishment and grooming aids have become increasingly popular throughout the world. All natural nourishing preparations to treat the problem of dry scalp and hair combines the use of various herbal oil extracts . Herbal formulations are always preferred because of their good activity and comparatively lesser or nil side effects as compared to the synthetic drugs. Present study was conducted to standardize the selected herbal hair oils for their physicochemical properties, i.e. colour, odour, pH, specific gravity, acid value, peroxide value and saponification value. The results of the study showed that the test oil complies with the requirements for physicochemical parameters as prescribed by BIS.

Keywords: Herbal hair oil, Physicochemical parameters, Herbal formulations, BIS

INTRODUCTION

Hair is a unique mammalian characteristic feature with lots of important functions.[1]Age long history and in most of the civilizations, scalp hair has been associated with positive signs such as beauty and power whereas baldness or hair loss on the other hand has negative attributes.[2]. Hair oils are the hair care preparations which are used for the prevention and treatment of baldness or other ailments, such as graying, split ends ,dandruff etc. of hair. They also promote the lavish growth of hair. Hair oil containing herbal drugs are also used as hair tonic. Combination of different phytoconstituents show more beneficiary effects. Different combinations of hair-oils are available in the market. Herbal formulations always have attracted considerable attention because of their good nourishment activity and comparatively lesser or nil side effects as compared with the synthetic drugs.[3] Present study deals with the standardization of the selected herbal hair oils on the basis of physicochemical parameters and some standards as prescribed by the Bureau of Indian Standards.

MATERIALS AND METHODS:

Navratna oil and Brahmi Amla oil were purchased from the local market of Kanpur, India. Physicochemical evaluation was done using conventional methods.[4-5] .

Physicochemical analysis:

a **Determination of colour and odour**

Color and odour of the oil samples were found to be typical of their constituents.

b Determination of specific gravity

The specific gravity of the oils were calculated from the following relationship.

Specific Gravity at 30°C = A-B / C-B Where, A = weight of specific gravity bottle with oil at 30°C (g); B = weight of specific gravity bottle at 30°C (g); C = weight of specific gravity bottle with water at 30°C (g).

c pH Determination

The digital pH meter was used for the pH determination.

d Determination of acid value

Acid value = 5.61V N / W Where, V = Volume of standard sodium hydroxide used (ml); N = Normality of the sodium hydroxide solution; W = Weight of the sample (g). Determination of peroxide value Peroxide value = 10 (a-b) / w Where, a = ml of NaOH required to neutralize the substance, b = ml of NaOH required for blank, w = weight of sample in (g).

e Determination of saponification value

Saponification value = 28.05 (B-S) W Where, S = ml of KOH required to neutralize the substance; B= ml of KOH required for blank; and; W = Weight of the sample taken for the test (g).

RESULTS AND DISCUSSIONS:

In the present study physicochemical evaluation was car-

ried out on Navratna oil and Amla oil. The various standard tests were performed and the test shows following results as in table 1. Colour and odour of the oil samples were according to their phyto constituents. The pH of both hair oils were found to be near about neutral,ie 6.1 of Navratna Oil and 6.8 of Brahmi Amla Oil which was in accordance with the compatibility of human skin. Acid value is an indication of the state of rancidity.

S.No.	Parameters	Navratna oil	Brahmi amla oil
1	Colour	Dark red	Green
2	Odour	Aromatic	Aromatic
3	Ph	6.1	6.8
4	Specific gravity	0.8	0.7
5	Acid value	0.8	0.9
6	Peroxide value	2.8	2.5
7	Saponification	225	180

Lower is the acid value, the higher is the quality of oil. Acid value of both the oils were found to be ranging from 0.8 (Navratna Oil) to 0.9 (Brahmi Amla Oil), whereas peroxide value were found to be ranging from 2.8 meq/1000 gm (Navratna Oil) to 2.5 meq/1000gm (Brahmi Amla Oil). If Peroxide value is high, the skin irritation coefficient will consequently increase and therefore many fragrances and essential oils have a peroxides index lower than a certain value. Saponification values are considered very significant in the making of soap. It is important that the saponification value is just right too high and the soap might contain too much alkali even though there is sufficient soapiness, that it would react with skin while if the saponification value is too small the fatty acid salts will not be sufficient enough to remove or saponify the fat or oil and less soapiness will be exhibited. Saponification value of Navratna Oil was found to be 225 and for Brahmi Amla Oil it was found to be 180.[6]

Table 1: Physicochemical analysis of some herbal oil

CONCLUSION:

This evaluation studies the various aspects of different brands of herbal oils and suggests that the selected parameters may be used in the standardization of herbal hair oil. The findings of the study showed that the test oil complies with the requirements for physicochemical parameters as prescribed by BIS.

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