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Research Article

**STANDARDIZATION OF HERBAL AYURVEDIC OIL
FORMULATION- KSHEER BALA TAILA****Poonam Joshi*, Deepak Nanda, Pankaj Nainwal, Prem Saini**

Dev Bhoomi institute of Pharmacy and Research, Dehradun, Uttarakhand

*Received: 22 May 2013,**Revised and Accepted: 30 May 2013***ABSTRACT**

Oils are described in Ayurveda most prominently, reason is the specificity of the oils in treatment and secondly there is a marvelous property in fats- Oil and Ghee (Indian Purified Butter), which makes these carrier of choice for different purposes. Herbal Oils work on all the three Doshas, due to the herbs processed with these oils. Ayurvedic Oils can be taken internally, because of the way these Ayurveda Oils are prepared. Ksheer Bala Taila was prepared in-house and was compared with the marketed formulation. The parameters which were determined for the evaluation are acid value, saponification value, Iodine value, Ester value, weight per ml, viscosity and refractive index. The parameters were found to be similar and hence it was suggested that these parameters could be used for standardization of ksheer Bala Taila.

KEYWORDS: Ksheer bala, Acid value, Ester value**INTRODUCTION**

Ksheera bala taila is one of the most popular oil preparations in Ayurveda and recognized as a very effective remedy for neurological disorders like facial paralysis, sciatica, hemiplegia, paraplegia, poliomyelitis and other such conditions. The name Ksheerabala taila was first mentioned in sahasra Yoga, an authentic Ayurvedic formulary of Kerala. The similar preparation has been mentioned by almost all ancient Ayurvedic texts but with different names. Charka mentioned as Shatasahasra Pakabala Taila, Sushruta mentioned as Shata pakabala taila and

Ashtanga hridaya mentioned as Shatapakasahasrapakabala Taila the ingredients of this preparation are Ksheera (Cow's milk), Bala (sida cordifolia) and Tila taila (Sesame oil). [1]

MATERIALS AND METHOD***Collection of Plant materials & Selection of Marketed Formulation***

All the ingredients of Ksheer Bala Taila were purchased from the Local market in Dehradun. Each ingredient was carefully checked for the presence of any foreign matter. All the ingredients were reduced to a coarse powder in a mortar pestle. Each ingredient was then passed through Sieve No-85.

* For corresponding

Poonam Joshi

Dev Bhoomi institute of Pharmacy and Research,

Dehradun, Uttarakhand

Email: pankajherbs@gmail.com

Tel: 0135-2694241-42

Fax: 0135-2694245

FORMULATION COMPOSITION

Bala kasaya (Sida cordifolia)-	16parts
Bala Kalka(Sida cordifolia) -	1part
Tila Taila(Sesamum indicum)-	4parts
Ksira(Cow's milk)-	4parts
Jala (Water)-	16parts

PREPARATION OF KSHEER BALA TAILA [2]

- Take all the powdered ingredients (Manjistha, haritaki, Bibhitaka, Amalaki, hrivera, haridra, Jaladhra, Lodhra, Sucipuspa, Vatankura, Nalika) of equal quantity. Transfer the powdered ingredients to wet grinder and grind with sufficient quantity of water to prepare Kalka. Take Tila Taila in a stainless steel vessel and heat it mildly. Add ingredients of Kalka. Heat thoroughly while adding water in ratio of 1:4. Start heating and constantly check the kalka for formation of Varti and observe the boiling mixture for appearance of froth. Stop heating when the Kalka forms a varti and the froth emerges. Filter while hot through a muslin cloth and allow cooling.
- Take dried Bala mula, add specified quantity of water, heat and reduce the volume to one-fourth. Filter with muslin cloth to obtain Bala Kvatha. Take the ingredient kalka dravya in formulation, wash, dry, powder and pass through sieve No 85. Transfer the powdered ingredients to wet grinder and grind with sufficient quantity of water to prepare Kalka. Take 90ml Murchita taila in a stainless steel vessel and heat it mildly, Add ingredients of Kalka. Stir thoroughly, while adding Kasaya, Godugdha and water, Heat for 3 hr with constant stirring maintain the temperature between 50°-90° during the first hr of heating. Stop heating and allow standing overnight. Start heating next day, stir and constantly check the Kalka by rolling between the fingers. Stop heating when the kalka breaks down into pieces. Filter while hot through a muslin cloth and allow cooling. Pack it in tightly closed containers to protect from light and moisture.

EVALUATION PARAMETERS [3]**Determination of Acid Value: -**

The acid value of a fat or an oil may be defined as the number of milligrams of KOH required to neutralize the free organic acid present in 1 gm of fat or oil. It is determined by dissolving by weighted quantity of oil and fat in alcohol and titrating against standard alkali, using phenolphthalein as indicator.

$$\text{Acid value} = 5.61 \times a \times N/W$$

Determination of Saponification value: -

It may be defined as no of milligram of KOH required to saponify 1gm of fat or oil. It is calculated by refluxing a weighed amount (1-2 g) of the fat or oil with known excess of standard alcoholic caustic potash solution and back titrating the excess alkali with a standard acid.

$$\text{Saponification value} = (b-a) \times 0.02804 \times 100/w$$

Determination of Iodine value: -

It may be defined as the number of grams of iodine taken up by 100gm of fat or oil. Iodine value of a fat or oil may be regarded as a measure of its degree of unsaturation and gives an idea of its drying character.

$$\text{Iodine value} = (a - b) \times 1.27/w$$

Where a = reading for the blank experiment.

b = reading for actual experiment.

W = weight of oil taken.

Determination of peroxide value: -

The peroxide value is the number of milli equivalent of active oxygen that express the amount of peroxide contained in 100gm of the substance.

$$\text{Peroxide value} = 10(a - b)/w$$

W= weight in gm of substance

Refractive Index: -

Refractive index of a substance with reference to air is the ratio of the sine of the angle of incidence to the sine of the angle of refraction of a beam of light passing from air into substance.

$$\text{Refractive index } \mu = \sin i / \sin r$$

Determination of weight per ml at 40:-

The weight per ml of a liquid is the weight, in a gm of 1ml of a liquid when weighed in air at 25°, unless otherwise specified.

Determination of viscosity:-

It is an index of resistance of a liquid to flow, The higher the viscosity of a liquid, the greater is the resistance to flow.

Determination of Ester value:-

The Ester value is the no. of milligrams of KOH required saponifying the ester present in 1g of the substance.

$$\text{Ester value} = \text{Saponification value} - \text{Acid value}$$

RESULT AND DISCUSSION

S.No.	Evaluation Parameter	Observation
1	Acid value	3.548
2	Saponification value	185.064
3	Iodine value	85.5
4	Peroxide value	1.38
5	Refractive index	1.471
6	wt/ml at 40°C	0.58g
7	Viscosity	15.52 centipoise
8	Ester Value	181.516

Acid value is defined as the number of milligrams of potassium hydroxide required to neutralise the free acids present in 1g sample of fat or oil. Acid value is an indication of rancid state. More acid value means more free fatty acid. This free fatty acid interferes in trans-esterification with methanol. Lower the acid value higher the yield / quality of oil. Acid value of Ksheer Bala Taila was found as 3.548. Saponification values are highly 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 whilst a saponification value too small -the fatty acid

salts will not be sufficient enough to remove or saponify the fat or oil and less soapiness. Saponification value of Ksheer Bala taila was found as 185.064. Ester value of Ksheer Bala Taila was calculated to be 181.516. The chemical test for the determination of oil oxidation is very important to check the product status of preservation in order to determine its shelf-life. 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 [4]. Peroxide value of Ksheer Bala Taila was found as 1.38

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