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**Alok Sharma, Sneha Babele and S C Mahajan**  
Mahakal Institute of Pharmaceutical Studies, Behind air strip, Datana, Dewas road, Ujjain (M.P.) India-456664

**Karunakar Shukla**  
Millennium College of Pharmacy and Science, Bhopal (M.P.)

## Correspondence

**Alok Sharma**  
Mahakal Institute of Pharmaceutical Studies, Behind air strip, Datana, Dewas road, Ujjain (M.P.) India-456664

Email: [aalokpharma@yahoo.com](mailto:aalokpharma@yahoo.com)

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## Comparative Assessment of Some Physicochemical Properties of Marketed Ayurvedic Mahanarayan Massage Oils

**Alok Sharma, Sneha Babele, Karunakar Shukla and S C Mahajan**

### ABSTRACT

Tailas or oils are important group of formulations used by Ayurvedic physicians to treat various types of diseases. *Mahanarayan* massages oils formulation which is used for the treatment of arthritis, Paralysis, and other joint related disorders. It also helps to stimulate the internal functions of the body while providing nourishment to different body tissues. Oils also lubricate to skin and tissue. The Present work was conducted to standardize the selected five marketed *Mahanarayan* massages oils for their physicochemical parameters, i.e. color, odor, pH, specific gravity, acid value, peroxide value & saponification value. The findings of the study showed that *Mahanarayan* massages oils were complies the requirements for physicochemical parameters as prescribed in standard text.

**Key words:** *Mahanarayan* massage oils, physicochemical parameters.

### 1. INTRODUCTION

Herbal plants have been used since olden times as medicines for the treatment of a wide range of diseases. Medicinal plants have played a key role in world health. In spite of the great advances observed in modern medicine in recent decades, plants still make an important contribution to health care<sup>1</sup>. In Sanskrit, the word consists of the words, Ayurveda āyu meaning "life" and, meaning "knowledge" or veda "science"<sup>2</sup>. Herbal Standardization is a method to ensure a predefined amount of quality, quantity & therapeutic effect of constituent in each dose. Standardization is the technique of develop a set of standards values or intrinsic characteristics values, constant parameters, most excellent qualitative and quantitative values that bring an assurance of quality, efficacy, safety and reproducibility<sup>3</sup>. One of the most significant problems face by the Ayurveda physicians is the unavailability of typical quality control parameters for Ayurvedic medicament and their formulations<sup>4</sup>. In some cases, like antitumor and antimicrobial drugs, about 60% of the medicines at present existing on the market and the majority of those in the late stages of clinical trials are resulting from natural herbal products, mainly from higher plants<sup>5</sup>. *Tailas* are medicated oils forming a group of drugs in Ayurvedic system of medicine. The main principle is to extract the therapeutic herbal drugs into oil. The way of preparation requires heating of oil with prescribed *kashayas* (decoction) and *kalkas* (powdered drug) according to formula. The *taila* have the color; odor and taste of the drugs used, and also have the consistency of the oil. Generally they are used for *abhyanga* (external or topical application) a few of them are too used internally with *anupanas*. *Taila* are medicated oils are similar to *ghrita*, but are prepared with oils instead of ghee<sup>6</sup>.

Ayurvedic *Mahanarayan* massages oils are formulation which on massaging helps to stimulate the internal functions of the body while providing nourishment to different body tissues. Oils are also lubricating to skin and tissue. The *Mahanarayan* massages Oil was named on God as *Narayana* or *Vishnu* due to its several health benefits like the improvement of the body odour, blood circulation and joint movements.

*Mahanarayan* massages Oil is very well known herbal oil used in Ayurvedic cure of arthritis, paralysis, and eye diseases. This oil is used for topical application, for many Ayurvedic therapies and diseases management<sup>7</sup>.

### 1.1 Properties

The *Mahanarayan* oil is an Ayurvedic classical recipe, it is made in 3 stages. First, Sesame oil is purified with a decoction of 9 herbs, the *Murchan Draya*, than 29 new ingredients are added to the oil as a paste, it is called *Kalka Draya*. Finally, a new decoction made with 14 ingredients will cook with the oil until complete evaporation of the milk and the water, it is *Kwath Draya*. This formula is unchanged for thousand of years. This oil relieves and frees the joints. It is best for *Vata* conditions.

### 1.2 Ingredients<sup>7,8</sup>

It contain about 59 herbal drugs in formulation and some drugs are listed in (Table-1).

## 2. MATERIALS AND METHODS

Different brands of Ayurvedic *Mahanarayan* massages oil BM (Baidyanath), DM (Dabur), VM (Vyas Pharmaceuticals), JPM (Jamna Pharmaceuticals) & DHM (Shree Dhanwantri) are purchased from local market of Ujjain. Physicochemical parameters evaluation was done using usual method<sup>9,10</sup>.

### 2.1 Physico-chemical Evaluation

The Physico-chemical Evaluation studies of *Mahanarayan* massage oil provide the simplest and quickest means by which to establish identity, purity, and quality. If a sample formulation is found to be considerably different, in terms of colour, consistency, odour, from the specifications, it is considered as not fulfilling the requirements, examination by method described below:

#### 2.1.1 Colour

All the samples were taken in watch glass and examined the untreated sample under diffuse daylight. They were observed for their colour by naked eye. Color and odor of the massage oils samples were typical of their constituents.

#### 2.1.2 Odour

All the samples were examined for their odour and smelled individually. The time interval among the two smelling was kept two minutes to nullify the effect of previous smelling.

#### 2.1.3 Determination of specific gravity

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

$$\text{Specific Gravity at } 30^{\circ}\text{C} = \frac{A-B}{C-B}$$

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).

#### 2.1.4 pH Determination

The digital pH meter was used for pH determination.

#### 2.1.5 Determination of acid value

$$\text{Acid value} = \frac{5.61V N}{W}$$

Where, V = standard sodium hydroxide Volume used (ml); N = Normality of the sodium hydroxide solution; W = Weight of the sample (g).

#### 2.1.6 Determination of peroxide value

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

Where, a = NaOH in ml required to neutralize the substance, b = NaOH in ml required for blank, w = weight of sample in (g).

#### 2.1.7 Determination of saponification value

$$\text{Saponification value} = \frac{28.05(B-S)}{W}$$

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

## 3. RESULT AND DISCUSSION

In present work physicochemical evaluation of five marketed Ayurvedic *Mahanarayan* massages oils was carried out. The various standard tests were performed and their following results were shown in table-2.

Color and odor of the oil samples were typical of their constituents. The density of all marketed Ayurvedic *Mahanarayan* massages oils were found to be in range 0.85±0.03-0.88±0.05. The pH of all *Mahanarayan* massages oils were found in range 5-7 neutral to near about slightly acidic, which was in accordance with human skin. Acid value is a sign of rancid state. Lower the acid value higher the quality of oil. Acid value of all the oils was found to be ranging from 0.651±0.005-0.657±0.002. Whereas peroxide value was found to be ranging from 3.25±0.16-3.59±0.15. 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 value was found in range  $181 \pm 0.03$ - $186 \pm 0.05$ .

#### 4. CONCLUSION

The field of the herbal medicines and formulations is very immense and there is still lot to investigate on the subject of standardization of these. The *Mahanarayan* massages oil is an Ayurvedic classical recipe and famous herbal oil used in treatment of arthritis, paralysis and other joint problems. This oil is used for external application, for many Ayurvedic therapies.

The proposed work is aimed for the establishment and innovative physicochemical studies assuring the quality and efficacy of *Mahanarayan* massages oil because of be deficient in knowledge, deficiency of methods for assessing the quality, tedious process of preparation, ignorance of regulatory bodies, and from the point of economic benefits, manufacturers and usual practitioners disgrace the quality and efficacy of the Ayurvedic formulations.

#### CONFLICT OF INTEREST

The authors declare that there is no conflict of interests regarding the publication of this paper.

Table 1. Some drugs used in *Mahanarayan* massages oils

S. No	Plant Name	Part	Chemical Constituents	Pharmacological Actions
1.	Ashwagandha ( <i>Withania somnifera</i> )	Root	Withanine, Alkaloids, Amino Acids	Carminative Effects On CNS, Reduces nerve or muscle pain
2.	Gokhru ( <i>Tribulus terrestris</i> )	Whole plant & Seeds	Harmine, Harmaline & Resins	Antioxidant, diuretic, Antimicrobial activities
3.	Shyonak ( <i>Oroxylum indicum</i> )	Root	Linoleic, Myristic, Palmitic Acid	Antiarthritic, Anti-inflammatory, Stomachic activity
4.	Seasame Seed oil ( <i>Sesamum indicum</i> )	Seeds	Palmitic, Stearic, Linoleic & Oleic acid	Gingivitis, Antihypertensive, Multiple Sclerosis
5.	Paribhadra ( <i>Erythrina indica</i> )	Leaf	Erythraline, Eryosodine & Ferulic acid	Anticonvulsant, Neuromuscular Blocking, Sedative
6.	Bhringraj ( <i>Eclipta alba</i> )	Herbs, roots & leaves	Ecliptine, Ecliptal, Hepatocosanol	Antihepatotoxic, Wound healing & Antioxidant
7.	Tejpatra ( <i>Cinnamomum tamla</i> )	Leaves	Linalool, Limolene	Metabolic disorders, Carminative, Stimulant
8.	Cardamomum Seed ( <i>Elettaria cardamomum</i> )	Seeds	Terpene, Cymene, Limonene, Nerodicol	Antispasmodic, Stimulant & Aphrodisiac
9.	Tarmarind ( <i>Tamarindus indica</i> )	Fruit	Phenolic compounds, cardiac glycosides	Anti-inflammatory, Antimicrobial & Antioxidant
10.	Jatmansi ( <i>Nardostachys jatmansi</i> )	Rhizomes	Jatmansone, Nordastachone & Resins	Hepatoprotective, Hypolipidaemic & Cardioprotective activity
11.	Camphor ( <i>Cinnamomum camphora</i> )	Bark & Wood	Nerolidol, Safrole, Borneol	Anti-inflammatory, Analgesic
12.	Rasna ( <i>Alpinia officinarum</i> )	Leaves & Seeds	Methyl Cinnamate, Cineole, Camphor, Pinene	Anti-inflammatory, Spasmolytic
13.	Shalaparni ( <i>Desmodium gangeticum</i> )	Root	Caudicine, Gangetin, Hypaphsorine	Carminative, Purgative, Stomachic
14.	Shallaki ( <i>Boswellia serrate</i> )	Gum Resin	Thujene, Linalool, Cymene	Anti-inflammatory, Antiarthritic
15.	Fennel ( <i>Foeniculum vulgare</i> )	Seeds	Anethole, Fenchone, Myrecene	Antibacterial, Antifungal, Antithrombic activity
16.	Kantkari ( <i>Solanum xanthocarpum</i> )	Fruits, Whole plant	Solasodine, Solamargine	Cardiostimulant, Analgesic & Anti-inflammatory
17.	Dalchin ( <i>Cinnamomum cassia</i> )	Barks & Leaves	Cinnamaldehyde, Eugenol & Phellandrene	Antimicrobial, Anticlotting, Antispasmodic Diuretic

Table 2. Physiochemical parameters of different marketed *Mahanarayan* massage oils

S. No.	Parameters	BM	DM	VM	JPM	DHM
1	Acid Value	0.654±0.003	0.652±0.004	0.655±0.006	0.657±0.002	0.651±0.005
2	Saponification Value	182±0.04	185±0.05	181±0.03	183±0.04	186±0.05
3	Peroxide Value	3.59±0.15	3.42±0.16	3.32±0.12	3.25±0.16	3.46±0.14
4	Specific gravity	0.86±0.02	0.88±0.05	0.85±0.03	0.87±0.06	0.87±0.06
5	pH	5	6	5	7	5
6	Colour	Pale brown	Pale brown	Pale brown	Pale brown	Pale brown
7	Odour	Aromatic	Aromatic	Aromatic	Aromatic	Aromatic

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