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REVIEW ARTICLE

Comparative Analytical Study of *Bala Taila* Prepared from *Amurchhita* and *Murchhita Tila Taila*

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ABSTRACT

BACKGROUND: *Sneha Kalpana* is a secondary dosage form in *Ayurvedic* Pharmaceutics designed to extract lipid-soluble active principles from plants into a fat medium to enhance therapeutic potency. A critical step in this process is *Sneha Murchhana,* a procedure where raw oil or ghee is boiled with specific medicinal herbs to remove impurities (A*ma dosha*), eliminate bad odors, and improve the drug's absorption and potency. **OBJECTIVE:** This study aimed to conduct a comparative analytical evaluation of *Bala Taila* prepared using two different methods: one utilizing *Amurchhita* (unprocessed) *Tila taila* and the other using *Murchhita* (processed) *Tila taila*. **MATERIALS AND METHODS:** Both variants of *Bala Taila* were prepared according to classical *Ayurvedic* textual references. The formulations were then subjected to organoleptic and physico-chemical analysis—including tests for specific gravity, acid value, saponification value, and refractive index—following CCRAS guidelines. **RESULTS:** While organoleptic characters remained largely similar, physico-chemical analysis revealed significant differences. *Murchhita Bala Taila* exhibited a lower acid value (1.76) compared to *Amurchhita Bala Taila* (2.90), indicating better quality and resistance to rancidity. Additionally, the saponification value was higher in the *Amurchhita* variant (219) compared to the *Murchhita* variant (198). Both samples were free from mineral oil and microbial contamination. **CONCLUSION:** The analytical data suggests that *Bala Taila* prepared with *Murchhita Tila taila* is of superior quality, containing fewer impurities and demonstrating better stability than its *Amurchhita* counterpart. Consequently, *Murchhita Bala Taila* is expected to be more clinically effective.

Key Words *Sneha Kalpana, Bala Taila, Murchhana, Tila Taila, Physico-Chemical Analysis*

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INTRODUCTION

There are primary and secondary dosage form described in *Ayurvedic* Pharmaceutics. *Sneha Kalpana* is the secondary dosages form with the aim to extract the lipid soluble active principles of plant into *sneha* medium and to increase therapeutic potency of sneha[1]. The essential ingredients required to prepare the *sneha kalpana* is *kalka dravyas, sneha dravya, drava dravyas*.

Sneha murchhana is the procedure where the raw sneha(oil/ghee) is boiled with fine powder of selected medicinal drugs and desired quantity of

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water to get rid of *ama dosha* and bad odour present in it[2]. This process in turn helps in enhancing the potency of same, alter chemical composition of sneha which indirectly helps in extraction of active principles into sneha medium and enhance the appetite of drug absorption in sneha.

Bala taila is the one of most important formulation of Ayurvedic Pharmaceutics described by different Acharyas in different classical texts.

*Bala Tai*l in *Bharat Bhaishajya Ratnakar* and *Gadanigraha* is mentioned for all types of *vata rogas, raktashrit vata, pitashrita vata, yonidosha, talushosha, trisha, daha, parshvshula, raktapitta, shosha, apshmara, visharpa, sirograha and as ayuvarnakar, parjakaram*[3].

Owing to these, an attempt is made in present study to compare the analytical study of *bala taila* prepared from *amurchhita tila taila* and *murchhita tila taila*.

MATERIALS AND METHODS

Collection of Raw Drugs- The required raw materials used to prepare the *taila* was procured from the Shiva herbals, Yamunanagar, Haryana.

Authentication of Raw Drugs- All the raw drugs is authenticated by State Drug Testing Laboratory, Kurukshetra.

Preparations of Oil- The preparation of oil was carried out as per textual references in State Ayurvedic Pharmacy, Kurukshetra[3].

Method of Preparation

1. *Bala Taila* from *Amurchhita Tila Taila*-

The ingredients required for the preparation of *Bala Taila* are as per in table 1.

Table 1 Ingredients required to prepare *Bala Taila*

S No	Drugs	Quantity
1	**Bala**	10.4 parts
2	**Water**	204.8 parts
3	**Tila taila**	25.6 parts
4	**Godugdha**	102.4 parts
5	**Bala kalka**	1 part
6	**Tila kalka**	1 part

Bala panchang washed with clean water, dried in sunlight and coarsely powdered with the help of grinder. Prepare the *bala kwatha* by using appropriate quantity of water, reduced it to 1/4. Prepare the *tila* and *bala kalka*. Then *tila taila* was taken in a vessel, heated in *mandagni* then add prepared *kalka*, then *kashaya* and *godugdha* in specified quantity and heated in *madhyam agni* till *taila sidhhi lakshana* appears. Filter the prepared oil through clean cloth and stored in suitable container.

2. *Bala taila* from *Murchhita Tila Taila*-

A) *Tila taila Murchhna*[4]

The ingredients required for *tila taila murchhana* are described in table 2. Prepare the *kalka* of drugs. *Tila taila* is taken in a vessel, heated to *mandagni* then add the prepared *kalka* of drugs and specified quantity of water and heated in *madhyam agni* till *taila sidhhi lakshana* appears. Filter the oil through clean cloth.

Table 2 Ingredients required for *tila taila murchhana*

S No	Drugs	Quantity
1	**Tila taila**	1 part
2	**Manjishta**	1/16 part
3	**Harad, Baheda, Amla, Musta, Haridra, lodhra, Kevada, Kumari, Netrabala**	1/64 part each
4	**Water**	4 parts

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B) *Bala Taila* Preparation

The ingredients required for the preparation of *Bala Taila* are as per in table 3.

Table 3 Ingredients required to prepare *Bala Taila*

S No	Drugs	Quantity
1	**Bala**	10.4 parts
2	**Water**	204.8 parts
3	**Murchhita Tila taila**	25.6 parts
4	**Godugdha**	102.4 parts
5	**Bala kalka**	1 part
6	**Tila kalka**	1 part

Bala panchang washed with clean water, dried in sunlight and coarsely powdered with the help of grinder. Prepare the *bala kwatha* by using appropriate quantity of water, reduced it to 1/4. Prepare the *tila* and *bala kalka*. Then, *murchhita tila taila* was taken in a vessel, heated in *mandagni* then add prepared *kalka*, then *kashaya* and *godugdha* in specified quantity and heated in *madhyam agni* till *taila sidhhi lakshana* appears. Filter the prepared oil through clean cloth and stored in suitable container.

Analytical Study

This includes organoleptic and physico-chemical parameters of *bala tail* as per the CCRAS guidelines[5].

1. Description 2. Colour 3. Odour 4. Saponification value 5. Specific gravity	6. Acid value 7. Refractive index 8. Microbial staining test 9. Mineral oil

These tests was carried out at State Drug Testing Laboratory, Kurukshetra by following the procedures described in General Guidelines for drug development of Ayurvedic Formulations[6] and Laboratory Guide for the Analysis of Ayurveda and Siddha Formulations by Central Council for Research in Ayurvedic Sciences[7].

OBSERVATIONS AND RESULTS

The properties of drugs used for preparation of *bala taila* is described in table 4 as per classical texts[8].

Table 4 Properties of Drugs used for *Bala tail* preparation

S No	Drugs	Botanical Name	Rasa Panchaka	Uses
1	**Bala**	*Sida cordifolia*	Madhura rasa, Snighdha, sheeta guna, sheeta virya, madhura vipaka	Rasayana
2	**Tila taila**	*Sesamum indicum*	Madhura rasa, tikshana, vyavayi, suksham, ushna, sara, vishada, guru	Brihngan, vrishya, balya, shulprashman
3	**Godugdha**		Madhura rasa, guru, snigdha guna, sheeta virya, madhura vipaka	Rasayan, hridya, jivaniya

Table 5 Organoleptic parameters of *amurchhita* and *murchhita bala taila*

S No	Parameters	***Amurchhita bala taila***	***Murchhita bala taila***
1	**Description**	Liquid Oil	Liquid Oil
2	**Colour**	Light	Light Yellow
3	**Odour**	Characteristic	Characteristic

Table 6 Physico-chemical parameters of *amurchhita* and *murchhita bala taila*

S No	Parameters	Amurchhita bala taila	Murchhita bala Taila
1	**Saponification value**	219	198
2	**Specific gravity**	0.920	0.918
3	**Acid value**	2.90	1.76
4	**Refractive index**	1.475	1.472
5	**Mineral oil**	Absent	Absent

6	**Microbial staining test**	No viable organism /animal body tissue or any insect body part is detected into the sample.	No viable organism /animal body tissue or any insect body part is detected into the sample.

The organoleptic characteristics of *bala taila* prepared from *amurchhita* and *murchhita tila taila* is mentioned in table 5 and result of physico-chemical parameters for same is mentioned in table 6.

DISCUSSION

Organoleptic characteristics of *bala taila* prepared from *amurchhita tila taila* and *murchhita tila taila* are nealry same, having just colour difference.

The Physico-chemical parameters of *bala taila* prepared from *amurchhita tila taila* and *murchhita tila taila* shows the significant differences.

Specific Gravity (SG) is the Weight of given volume of liquid at a specific temperature divided by weight of an equal volume of water at the same temperature. The changes in Specific Gravity is due to the dissolved material in oil. SG<1 shows less dense than water and float on water while SG>1 shows lots of waste product in it. Specific gravity of *murchhita bala tail* is less as compared to *amurchhita bala tail*.

Acid Value- This measures the miligrams of potassium hydroxide (KOH) require to neutralize free fatty acids in 1 gm of substances. Acid value signify the age, freshness, quality of product. Its lower value signifies the better quality. *Murchhita bala taila* has lower acid value than *amurchhita bala taila*.

Rancidity- High Acid value indicate that tryglycerides (TGs) broken down into free fatty acids (FFA) due to moisture, enzymes or heat leading to rancidity.

Refractive Index (RI) = sin angle of incidence/sin angle of refraction. This is the velocity of light of vaccum/velocity of light in substance. The solutes in media and consistency of media shows the differences in referative index. Higher RI shows specific molecular properties like higher unsaturation or impurities/adultration. Both oil RI is within limit as per RI of medicinal oils.

Saponification Value (SV) is the measures the mg of KOH needed to hydrolyze 1 gm of fat/oil into glycerol and fatty acid salts. Its high value shows more low molecular weight fatty acid which facilitate the production of more lathering and harder soap. *Amurchhita bala taila* has the higher saponification value as compared to *murchhita bala taila*. **Mineral Oil-** This is the distillate of petroleum having complex mixture of hydrocarbons- paraffins, naphthenes. Mineral oil is absent in both.

There is no viable organism /animal body tissue or any insect body part is detected into the sample during the **microbial staining tests**.

CONCLUSION

The concept of *sneha murchhana* described by *Aacharyas* in Ancient *Ayurvedic* text is one of the most important step in preparation of *Sneha*

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Kalpana includes medicated *taila* and *ghrita kalpanas*. After the comparative analysis of organoleptic and physico-chemical parameters this can be concluded that *bala taila* prepared from *murchhita tila taila* is of better quality with less impurities as compared to *bala taila* prepared from *amurchhita tila taila*. *Murchhita bala taila* would be clinically more effective in comparison to *amurchhita bala taila*.

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