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Pharmacognostical and Pharmaceutical Evaluation of Monoherbal Formulation of *Latakaranja Beeja Vati* and *Palasha Beeja Vati*.

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ABSTRACT: -

Evaluation of herbal formulation is important in order to evaluate the quality, purity, safety and efficacy of drugs built on quantity of their active principles. The purpose of the present work is pharmaceutical standardization of *Latakaranja Beeja Vati* and *Palasha Beeja Vati*. It is monoherbal preparation. The *Latakaranja Beeja* and *Palasha Beeja* are cited in the ancient books of *Ayurveda* used for the treatment of *Krimi* (Intestinal Worm Infestation). *Latakaranja Beeja Vati* and *Palasha Beeja Vati* were prepared to evaluate the organoleptic characters, pharmacognostical study and physicochemical parameters. So far there is no work found of *Latakaranja Beeja Vati* in the *Krimi*. Outcomes of the study were helpful in standardization of monoherbal *Ayurvedic* formulation *Latakaranja Beeja Vati* and *Palasha Beeja Vati*. The research work conducted will help in worldwide acceptance of both the formulations.

Key words: *Krimi*, *Latakaranja Beeja*, *Palasha Beeja*, Pharmacognosy, Pharmaceutics, Standardization.



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INTRODUCTION

Intestinal parasitic infections are one of the major health problems in several developing countries, including India. These infections are distributed throughout the world with high prevalence in low socio-economic communities in tropics and subtropics. Amoebiasis, Ascariasis, Trichuriasis and Hookworm infections are the most common infections all over the world^[1]. Intestinal protozoan and Worm Infestation are widely prevalent and causing considerable medical and public health problems in developing countries.^[2] Poor sanitation, scarcity of potable drinking water and low standard of personal hygiene contribute to rapid spread of these infections.^[3] The frequency of parasitic infections varies with age and sex of general population. Intestinal parasitic infections are more common in children and leads to Nutritional deficiency, Anaemia, Growth retardation and impaired learning ability^[4] Due to improper *Ahara* (Diet) and *Vihara* (Lifestyle), the incidences of *Krimi* (Worm Infestation) are increasing day by day in children because of their dependent nature, more affinity to sweet foods and poor personal hygiene.

The term *Krimi* is used to denote tiny living beings which reside in the human body in *veda*. Concept of the *Krimi* and their relation in the development of

disease is described in all available Ayurvedic literature. *Acharyas* also describe *Krimi* as an etiological factor in various diseases; eg. *Krimija Hridroga*, *Krimija Shiroroga* etc. *Acharya Charaka* classified *Krimi* into 20 types which come under the two broad groups i.e. *Bahya* and *Abhyantara*.^[5] He also postulated the line of treatment of *Krimi* i.e., *Apakarshana* (extraction of *krimi*), *Prakriti Vighata* (destruction of the favorable environment for survival of *Krimi*) and *Nidana Parivarjana* (avoidance of etiological factors responsible for growth of *Krimi*)^[6] mainly by through diet, medicines, hygiene and lifestyle management. *Acharya Kashyap* also mentioned use the medicines which have *Tikta*, *Ushana*, *Katu*, *Ruksha* properties in the treatment of *Krimi*.

Considering the above fact *Latakaranja Beeja*^[7] and *Palasha Beeja*^[8] have the properties which are potent enough for the management of *Krimi* (Intestinal Worm Infestation). The effect of the drug can be further justified after analyzing the result of clinical trial.

MATERIALS AND METHODS

Drug Material

Raw drug material was collected from the pharmacy of local market of Jamnagar.

Table : 1. Ingredients and part used of *Latakaranja Beeja Vati*:

No.	Name	Latin name	Part used
1	<i>Latakaranja</i>	<i>Caesalpinia crista</i> Linn.	<i>Shushka Beeja</i>

Methods of preparation of *Latakaranja Beeja Vati*

Take the roasted *Latakaranja Beejas* and remove the *Beejamajja*. Make *Churna* from *Beejamajja*.

Latakaranja Beeja Majja Kwatha Bhavana should be given twice per day till dry for one day only. Lastly, 500 mg tablets were made in tablet making machine.

Table : 2. Ingredients and part used of *Palasha Beeja Vati* :

No.	Name	Latin name	Part used
1	<i>Palasha</i>	<i>Butea monosperma</i> Lam.	<i>Shushka Beeja</i>

Methods of preparation of *Palasha Beeja Vati*

Make *Churna* from *Palasha Beeja*. *Palasha Beeja Kwatha Bhavana* should be given twice per day till dry for one day only. Lastly, 500 mg tablets were made in tablet making machine.

Pharmacognostical study

Raw drugs were recognised and authenticated by the Pharmacognosy laboratory, IPGT & RA., Jamnagar. The identification was carried out based on the morphological structures, organoleptic features and powder microscopy of the individual drug. Later, pharmacognostical evaluation of the tablets was carried out. Tablet was liquefying in small quantity of distilled water, filtered through filter paper and studied under the microscope attached with camera, with stain and without stain. Microphotographs were taken by using Carl Zeiss Trinocular microscope attached with camera.^[9]

Table : 3. Organoleptic evaluation of *Latakaranja Beeja Vati*

Parameters	Results
Appearance	Powder
Colour	Orangish creamy
Odour	Oily smell
Taste	Bitter
Touch	Fine

Table : 4. Organoleptic evaluation of *Palasha Beeja Vati*

Parameters	Results
Appearance	Powder
Colour	Brownish yellow
Odour	Unpleasant
Taste	Bitter
Touch	Fine

Physicochemical evaluation

Latakaranja Beeja Vati and *Palasha Beeja Vati* were analysed by using standard qualitative and quantitative parameters, HPTLC was carried out after making suitable solvent system with methanolic extract of *Latakaranja Beeja Vati* and *Palasha Beeja Vati* at the pharmaceutical chemistry lab, IPGT & RA. Gujarat Ayurved University, Jamnagar^[10]

OBSERVATION AND RESULTS**Organoleptic evaluation**

The Organoleptic characters are very important and give the general idea regarding the gentility of the sample. It is done with the help of *Panchagyanendriya Pariksha* sense organs. Various parameters such as colour, odour, taste, touch and texture of the finished product were observed and recorded^[11]

Microscopic study

The powder microscopy of *Latakaranja Beeja Vati* and *Palasha Beeja Vati* were studied

microscopically and microscopic characters of the powder were obtained.

Figure no. - 1-7 Microphotographs of *Latakaranja Beeja Vati*.

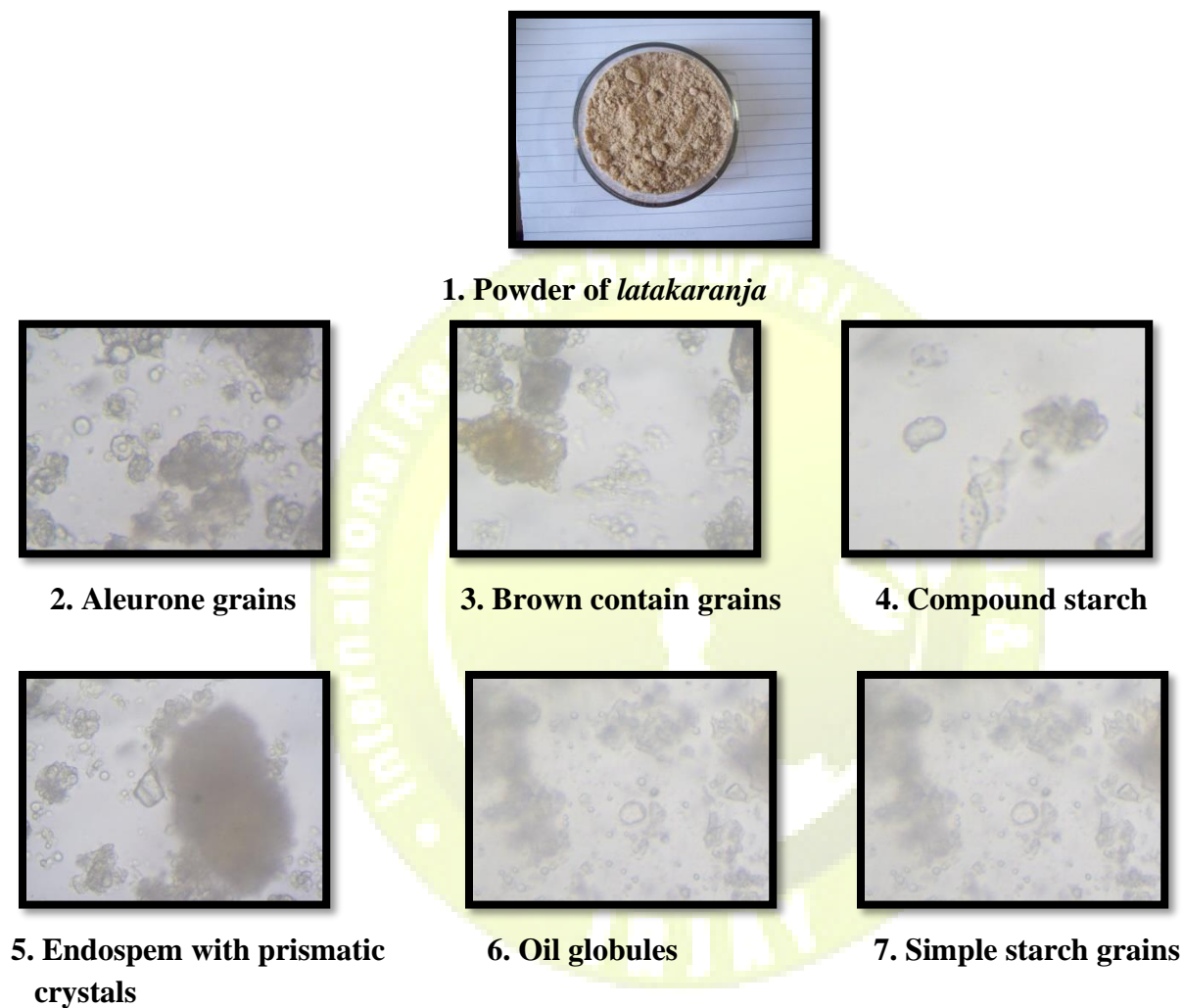
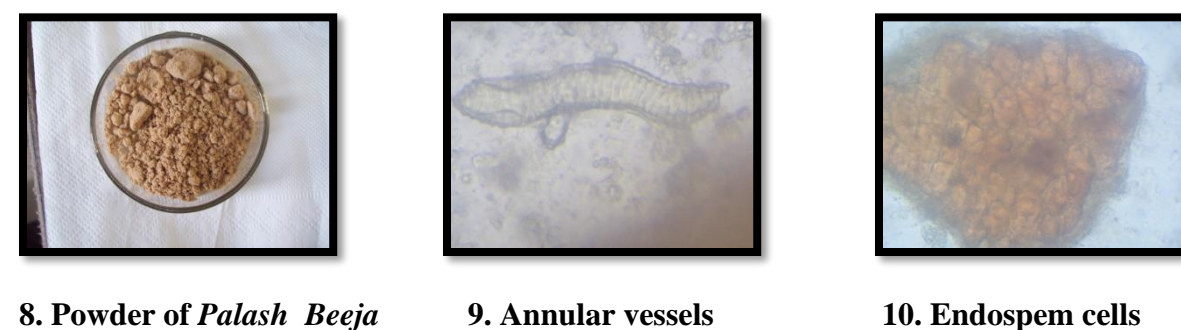
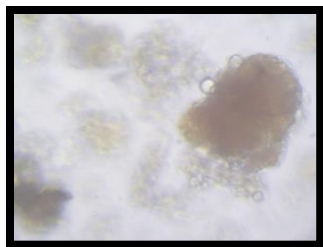
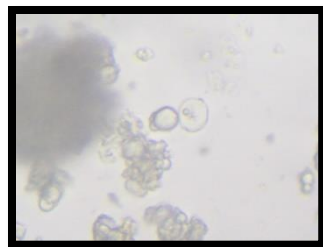


Figure no. - 8-16 Microphotographs of *Palasha Beeja Vati*.

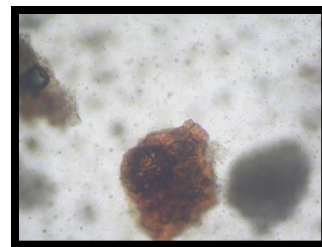




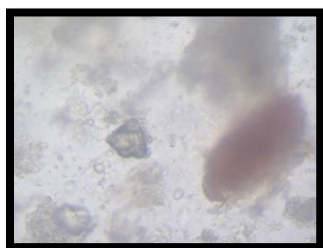
11. Epidermal cells with oil globules



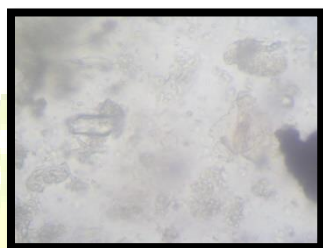
12. Oil globules



13. Reddish brown content with crystalline material



14. Rhomboidal crystal(1)



15. Rhomboidal crystal(2)



16. Simple fibres

Physico-chemical analysis

Physical analysis like shape, size, weight

variation, hardness and uniformity of weight were recorded and results are mentioned in the table below.

Table : 5. Physico-chemical analysis of *Latakaranja Beeja Vati*

Parameters	Results
Shape	Round
Size	0.5 cm
Weight variation	4 %
Uniformity	492.3 mg
Hardness	1.25 kg/cm ²

Table : 6. Physico-chemical analysis of *Palasha Beeja Vati*

Parameters	Results
Shape	Round
Size	0.5 cm
Weight variation	4 %
Uniformity	493.3 mg
Hardness	3.2 kg/cm ²

Qualitative analysis

Physico-chemical analysis were carried out by following the parameters. Physico-chemical analysis like loss on drying, ash value, water

soluble extract, alcohol soluble extract were recorded. Results are mentioned in the below table.

Table : 7. Qualitative analysis of *Latakaranja Beeja Vati*

No.	Analytical parameter	Results
1	Lose on drying	3.21% W/W
2	Ash Value	7.056 % W/W
3	Water soluble	27.140 % W/W
4	Alcohol soluble	20.69% W/W
5	pH (5 % aqueous)	6.0

Table : 8. Qualitative analysis of *Palasha beeja vati*

No.	Analytical parameter	Results
1	Lose on drying	8.01% W/W
2	Ash Value	7.056 % W/W
3	Water soluble	13.04 % W/W
4	Alcohol soluble	1.2% W/W
5	pH (5 % aqueous)	6.0

High performance thin layer chromatography (HPTLC)

HPTLC was carried out after making suitable solvent system with methanolic extract of *Latakaranja Beeja Vati* and *Palasha Beeja Vati*. On performing HPTLC, visual observed tablet

under UV light, showed few spots but on analysing under densitometer at 254nm and 366nm it results into 14 and 13 spots respectively. Results HPTLC and densitogram is given below.

Table: 9. Maximum R_f value of *Latakaranja Beeja Vati*

Chromatogram shows 8 prominent spots at 254nm with maximum R_f value		Chromatogram shows 05 prominent spots at 366nm with maximum R_f value	
No. of Spots 8	0.03	No. of Spots 5	0.05
	0.05		0.78
	0.13		0.83
	0.38		0.86
	0.78		0.89
	0.83		
	0.86		
	0.89		

Table: 10. Maximum R_f value of *Palasha Beeja Vati*

Chromatogram shows 9 prominent spots at 254nm with maximum R_f value		Chromatogram shows 07 prominent spots at 366nm with maximum R_f value	
No. of Spots 9	0.05	No. of Spots 7	0.05
	0.11		0.70
	0.38		0.74
	0.70		0.84
	0.74		0.86
	0.84		0.89
	0.86		0.92
	0.89		
	0.92		

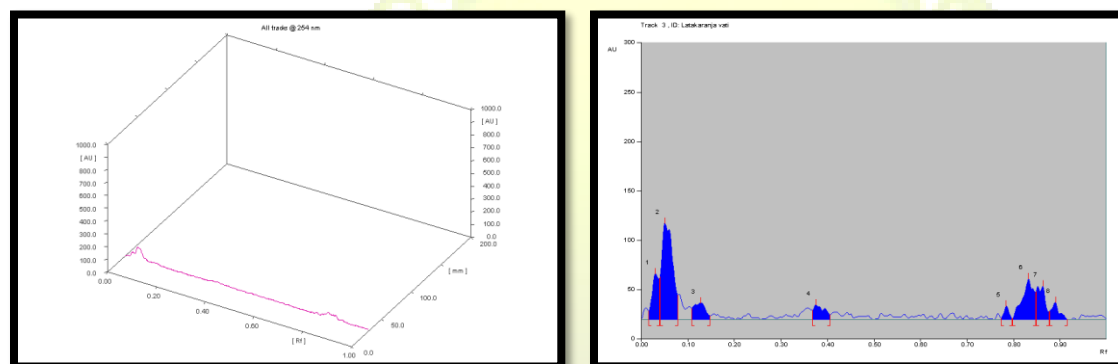
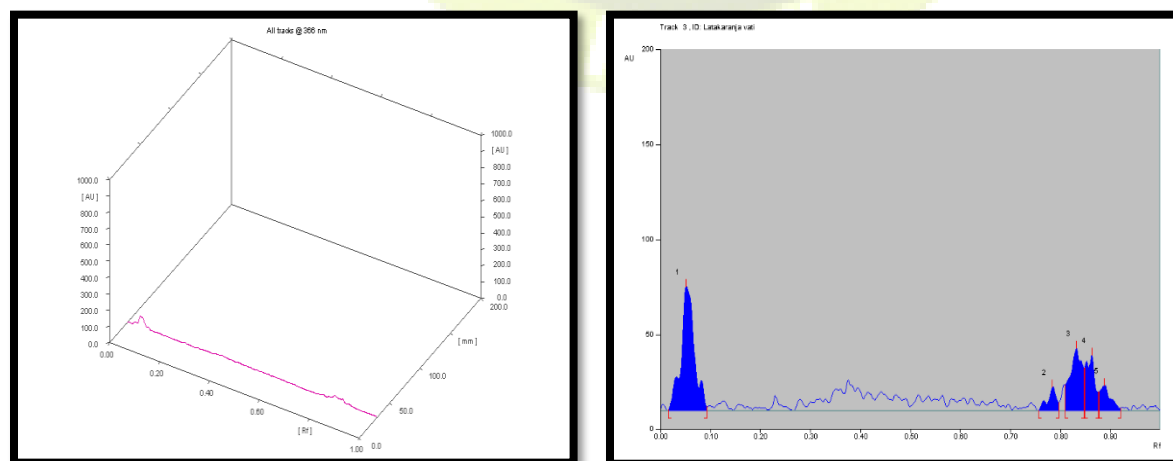
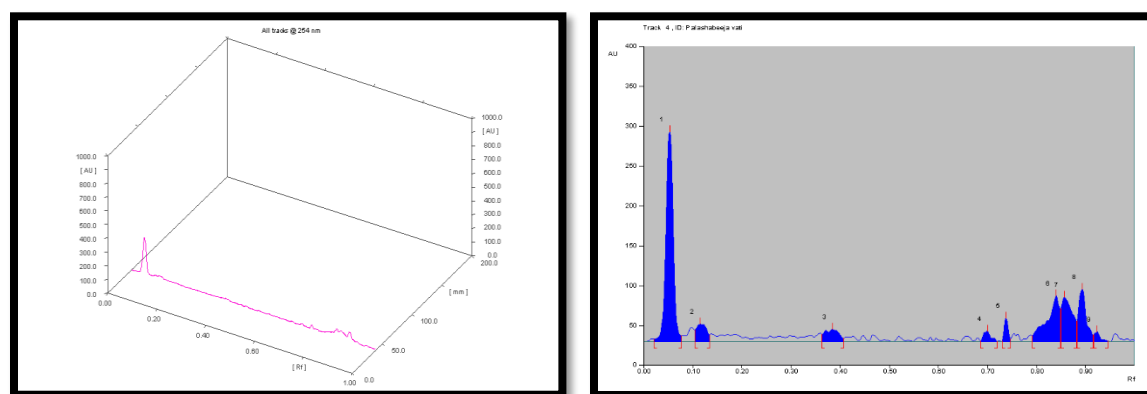
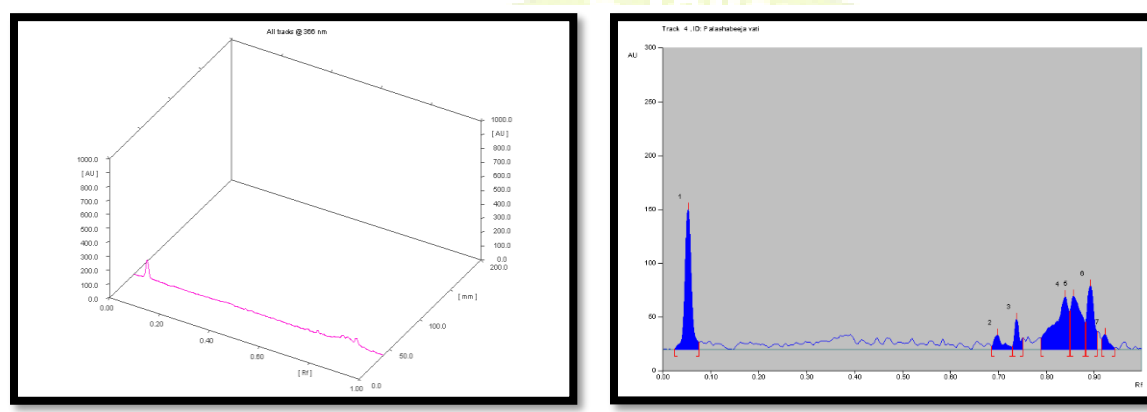
Figure No. 17 – 18 Densitogram curve of Methanol extract of *Latakaranja Beeja Vati* at 254nm**Figure No.19-20 Densitogram curve of Methanol extract of *Latakaranja Beeja Vati* at 366 nm**

Figure No. 21–22 Densitogram curve of Methanol extract of *Palasha Beeja Vati* at 254nmFigure No.23-24 Densitogram curve of Methanol extract of *Palasha Beeja Vati* at 366 nm

RESULT

Pharmacognosy and pharmaceutical assessment of *Latakaranja Beeja Vati* and *Palasha Beeja Vati* were performed which are effective medicines in the management of *Krimi*. Both the drugs were authenticated and analysed before processing because good quality products mainly dependent upon genuine raw materials. The Aleurone grains, brown contain, compound & simple starch grain, endosperm with prismatic crystal, oil globules and endosperm cell epidermal cell with oil globule, annular vessels, reddish brown contain with crystalline material, rhomboidal crystal, simple fibres are observed under the microscope in *Latakaranja Beeja Vati* and *Palasha Beeja Vati* respectively. In physicochemical analysis, uniformity of

Latakaranja Beeja Vati tablets(492.3mg), hardness of tablets (1.25 kg/cm^2), loss on drying(3.21% W/W), ash value(7.056 %W/W), water soluble (27.140 % W/W), alcohol soluble extract(20.69% W/W) and HPTLC profile of the methanolic extract of the drug showed 08 spots at 254 nm and 05 spots at 366 nm were observed and assessed though the important investigation and analysis are essential for the identification of all the active chemical ingredients of the test drug to validate the clinical efficacy. Uniformity of *Palasha beeja vati* tablets (493.3mg), hardness of tablets (3.2 kg/cm^2), loss on drying(8.01% W/W), ash value(7.056 %W/W), water soluble (13.04 % W/W), alcohol soluble extract(1.2% W/W) and HPTLC profile of the methanolic extract of the drug showed 09 spots at 254 nm

and 07 spots at 366 nm. were observed and assessed though the important investigation and analysis are essential for the identification of all the active chemical ingredients of the test drug to validate the clinical efficacy.

DISCUSSION

Latakaranja Beeja Vati and *Palasha Beeja Vati* both had average weight which was observed within normal. Due to increased hardness of *Palasha Beeja Vati* the disintegration time observed was more than that of *Latakaranja Beeja Vati*.

Loss on drying of *Palasha Beeja Vati* was observed more than that of *Latakaranja Beeja Vati* which indicates more moisture content in the drug. Water soluble and Methanol soluble contents were observed more in *Latakaranja Beeja Vati* than in *Palasha Beeja Vati*. Ash value of both the samples was found to be same, which indicates both drugs had equal inorganic compounds.

CONCLUSION

Pharmacognostical study outcomes approve that all characters were found in ingredient drug of *Latakaranja Beeja Vati* and *Palasha Beeja Vati*. The physicochemical analysis infers that the formulation meets maximum qualitative standards and all the parameters discussed here may be used as identifying tools for the quality assessment of *Latakaranja Beeja Vati* and *Palasha Beeja Vati*. Thus, the outcome of the study may be taken as standard reference and groundwork fundamentals for the further studies.

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Conflict of Interest: Nil

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