



Probable Standardization of *Alambushadi Churna* Tablet For Quality Control

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ABSTRACT

Ayurveda accepts all *dravyas* (substances) are *panchabhautika* (five elements) and *dravya* (substances) has the medicinal properties. *Ama* (biotoxin) and vitiated *Vata* (bioforce) are the main causative factor in the disease manifestation of *Amavata* (Rheumatoid arthritis). One important plant based Ayurvedic drug i.e. *Alambushadi Churna* have been selected from famous Ayurvedic book (i.e. *Bhava Prakasha*) in context of *Amavata* for its probable standardization. It is a poly herbal Ayurvedic drug. The *Rasa, Guna, Virya, Vipak* and *Karma* of ingredients of *Alambushadi Churna* help to reduce the clinical manifestations of *Amavata* (Rheumatoid arthritis). The Physico-chemical study revealed that the *Alambushadi Churna* tablet contained more moisture, less inorganic constituents and more water soluble constituents. The Phytochemical study revealed that reducing sugars, tannin, phenolic compounds, flavonoids, saponin, glycosides and gum were present into the sample of *Alambushadi Churna* tablet. Four phytocostitents were indicated under short ultra violet ray (254 nm) and five phytocostitents were indicated under long ultra violet ray (366 nm) by thin layer chromatography study on the sample of *Alambushadi Churna* tablet.

KEY WORDS: *Alambushadi Churna* tablet, *Amavata*, Rheumatoid arthritis.

INTRODUCTION

Ayurveda accepts all *dravyas* (substances) are *panchabhautika* (five elements) and any *dravya* (substances) has the medicinal properties. Thus any *dravya* (substance) can act as an *ausadha* (drug) but all of them cannot be used everywhere and the use of a particular *dravya* (substance) for a particular purpose demands the *yukti* (the planning) ¹. *Ama* (Biotoxin) and vitiated *Vata* (Bioforce) are the main causative factor in the

¹Saroj Kumar Debnath , *International Journal of Ayurvedic & Herbal Medicine* 8(6) Nov.-Dec. 2018 (3386-3391) disease manifestation of *Amavata* ². *Amavata* disease is more similar to Rheumatoid arthritis according to its clinical manifestations and pathogenesis ³. Many plants based drugs are described in Ayurvedic texts in context of treatment of different diseases. One important plant based Ayurvedic drug i.e. *Alambushadi Churna* has been selected from famous Ayurvedic book (i.e. *Bhava Prakasha*) for its standardization on the basis of its Ayurvedic drug review and its modern chemical review in context of *Amavata* (Rheumatoid arthritis). Modern chemical review means review on Physicochemical, Phytochemical and TLC study on *Alambushadi Churna* in context of *Amavata* (Rheumatoid arthritis). Standardization of Ayurvedic drug is essential for the purpose of quality control of Ayurvedic medicines and better global acceptance of Ayurvedic medicines.

MATERIAL AND METHODS

Alambushadi Churna is an important plant based Ayurvedic drug and it is mainly used in the treatment of disease *Amavata* (Rheumatoid arthritis). *Alambushadi Churna* is a poly herbal Ayurvedic drug and thirteen Ayurvedic medicinal plants are used in it as ingredients. *Alambushadi Churna* has been selected from famous Ayurvedic book (i.e. *Bhava Prakasha*, 26th chapter). It is mentioned in *slokas* (information in Sanskrit language) no. 69 to 70 of 26th chapter of the *Bhava Prakasha* (Ayurvedic book) and its dose is 3 gm orally twice in a day with luke warm milk after meal ⁴. Drug preparing, Physico-chemical, Phytochemical and Thin layer chromatography study had been done in the Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurved University, and Jamnagar. Name of the ingredients (Ayurvedic name and Botanical name), used part of the plant ingredients and quantity of used part of the ingredients into the 3gm *churna* (powder) medicine are shown in the table-1. The action of *Ausadha dravya* (drug) has been explained as per Ayurveda on the basis of theory of *Rasa* (Taste), *Vipaka* (Post digestion effect), *Guna* (Quality), *Virya* (Potency), *Karma* (Pharmacological activity) and *Prabhava* (special Property) ^{5,6,7}. As per Modern Medicine Physicochemical, Phytochemical, TLC & HPTLC study are essential parameters for quality control of the drug ⁸.

Table-1: list of Ingredients of *Alambushadi Churna* (3 gm) ⁹

Ingredients (Ayurvedic name)	Botanical Name	Used part	Quantity (equal part)
<i>Alambusha</i>	<i>Sphaeranthus indicus</i> Linn.	Dried mature whole plant	1
<i>Gokshur</i>	<i>Tribulus terrestris</i> Linn.	Dried mature Fruit	1
<i>Guduchi</i>	<i>Tinospora cordifolia</i>	Dried Stem	1
<i>Vridhdadaraka</i>	<i>Argyrea nervosa</i> (Burm.f.) Bojer	Dried Root	1
<i>Pippali</i>	<i>Piper longum</i> Linn.	Dried mature Fruit	1
<i>Trivrit</i>	<i>Operculina terpathum</i> Linn.	Dried Root	1
<i>Mustaka</i>	<i>Cyperus rotundus</i> Linn.	Dried Rhizome	1
<i>Varuna</i>	<i>Crataeva nurvala</i> Buch-Ham.	Dried stem Bark	1
<i>Punarnava</i>	<i>Boerhavia diffusa</i> Linn.	Dried mature whole plant	1
<i>Haritaki</i>	<i>Terminalia chebula</i> Retz.	Dried mature Fruit	1
<i>Amalaki</i>	<i>Embllica officinalis</i> Gaertn.	Dried mature Fruit	1
<i>Vibhitaka</i>	<i>Terminalia bellirica</i> Roxb.	Dried mature Fruit	1
<i>Sunthi</i>	<i>Zingiber officinale</i> Roxb.	Dried Rhizome	1

RESULTS AND DISCUSSION

The Ayurvedic Properties of *Alambushadi Churna* is given in the table-2.

Table-2: Ayurvedic Properties of Alambushadi Churna (3 gm) ¹⁰

Ingredients	Part	Rasa	Guna	Virya	Vipaka	Vata	Pitta	Kapha
<i>Alambusha</i>	1	M,K,T	L,Ru	<i>Ushna</i>	<i>Katu</i>	↓		↓
<i>Gokshur</i>	1	M	G,Sn	<i>Sheeta</i>	<i>Madhura</i>	↓	↓	
<i>Guduchi</i>	1	T, Ka	Sn, G	<i>Ushna</i>	<i>Madhura</i>	↓	↓	↓
<i>Vridhdadaraka</i>	1	K,T, Ka	L,Sn	<i>Ushna</i>	<i>Madhura</i>	↓		↓
<i>Pippali</i>	1	K	L,Sn, Tik	<i>Anushna- sheeta</i>	<i>Madhura</i>	↓		↓
<i>Trivrit</i>	1	K,T	L,Ru, Tik	<i>Ushna</i>	<i>Katu</i>		↓	↓
<i>Mustaka</i>	1	K,T, Ka	L,Ru	<i>Sheeta</i>	<i>Katu</i>	↓	↓	
<i>Varuna</i>	1	M,T, Ka	L,Ru	<i>Ushna</i>	<i>Katu</i>	↓		↓
<i>Punarnava</i>	1	M,T, Ka	L,Ru, Sa	<i>Ushna</i>	<i>Madhura</i>	↓	↓	↓
<i>Haritaki</i>	1	M,A,K, T, Ka	L, Ru	<i>Ushna</i>	<i>Madhura</i>	↓↓	↓	↓
<i>Amalaki</i>	1	M,A,K, T, Ka	G,Ru, H	<i>Sheeta</i>	<i>Madhura</i>	↓	↓↓	↓
<i>Vibhitaka</i>	1	Ka	L, Ru	<i>Ushna</i>	<i>Madhura</i>	↓	↓	↓↓
<i>Sunthi</i>	1	K	L,Sn	<i>Ushna</i>	<i>Madhura</i>	↓		↓

M=Madhura(sweet),

A=Amla(sour),

La=Lavana(salt),

K=Katu(punjent),

T=Tikta(bitter),

Ka=Kashaya(astringent),

G=Guru(heaviness),

L=Laghu(levity),

Ru=Ruksha(dryness),

Sn=Snigdha(viscosity),

H=Hima(cold), Tik=Tikshna(sharpness),

Sa=Sara(fluidity),

V=Visada(clear),

Su=Sukshma(subtle).

As per Ayurvedic view pharmaco-therapeutical action of the *Alambushadi Churna* on *Amavata* (Rheumatoid arthritis) can be explained that the ingredients of the *Alambushadi Churna* are containing mainly *katu-tikta Rasa* (pungent-bitter taste), *ushna-laghu-ruksha-tikshna Guna* (hot-levity-dry-sharp qualities), *ushna Virya* (high potency), *katu or madhur Vipaka* (pungent or sweet taste bio-substance produced after completion of digestion) and *vata-kapha-shamaka* (vata-kapha-reducing) properties and have *deepan* (enzyme stimulant), *amapachan* (biotoxin neutralizer), *shothaghna* (oedema reducing), *vedanasthapaka* (analgesic), *jwaraghna* (anti-pyretic), *rasayana* (rejuvenator), *valya* (power enhancer), *mutrakaraka* (diuretic) and *amavatahara* (antirheumatism) e.t.c. *Karmas* (Pharmacological activity) which help to enhance the *Agni* (enzymes), to mitigate the *Ama* (bio-toxin), to reduce the aggravated *Vata dosha* (bioforce) and *Kapha dosha* (biofluid) which are the root causes of the disease *Amavata* (Rheumatoid arthritis) and by these properties it breaks down the *samprapti* (pathogenesis) of *Amavata* (Rheumatoid arthritis). As a result it minimizes the clinical manifestations of *Amavata* (Rheumatoid arthritis).

Table-3: Data of Physicochemical parameters (Quantitative test) of *Alambushadi Churna* tablet ¹¹

S.No.	Parameter	Result
1.	Uniformity of tablet (weight variation) (average weight)	500.5 mg
2.	Hardness of tablet (average)	1.225 kg/ cm ²
3.	Disintegration time of tablet	5 minutes
4.	Determination of Loss on drying at 110 °C	4.80 % W/W.
5.	Ash value (% of total ash)	9.75 % W/W.
6.	Acid insoluble ash value	2.35 % W/W
7.	Water soluble extractive value	33.00 % W/W.
8.	Methanol soluble extractive value	13.20 % W/W.

The data (i.e. table-3) of physicochemical study shows that Inorganic constituents are not more in *Alambushadi Churna* tablet, because it is made by herbal ingredients and so Ash value is not more. Water soluble constituents such as Sugars, Glycosides etc are more in *Alambushadi Churna* tablet, because Water soluble extractive value of it is more.

Phytochemical study of *Alambushadi Churna* tablet

Table-4: Data of Phytochemical parameters (Qualitative tests) of *Alambushadi Churna* tablet ¹²

Sl. No.	Components	Tests	Results
1.	Reducing sugars	Fehling's test	Positive
2.	Proteins	Biuret test	Negative
3.	Tannin	With 5% ferric chloride solution	Positive
4.	Phenolic compounds	With Lead acetated solution	Positive
5.	Flavonoids	Shinoda test	Positive
6.	Cardiac glycosides	Keller-Killiani test	Negative
7.	Saponin glycosides	Foam test	Positive
8.	Steroid	Salkowski reaction	Negative
9.	Gum	Hydrolysis test with dilute HCl	Positive
10.	Mucilage	With ruthenium red	Negative
11.	Non-reducing polysaccharides (Starch)	Iodine-test	Negative
12.	Alkaloids	Mayer's test	Negative

The data (i.e. table-4) of Phytochemical study reveals that Reducing sugars, Tannin, Phenolic compounds, Flavonoids, Saponin glycosides, Gum are present in *Alambushadi Churna* tablet, but Proteins, Cardiac glycosides, Steroid, Mucilage, Non-reducing polysaccharides (Starch), Alkaloids are not present in this tablet.

TLC Study of *Alambushadi Churna* tablet

Results of Thin layer chromatographic study on sample of *Alambushadi Churna* tablet under short ultra violet ray (254 nm) and under long ultra violet ray (366 nm) are shown in the table-5 and table-6 respectively.

Table-5: Thin layer chromatography data of *Alambushadi Churna* tablet under short ultra violet ray (254 nm)¹³

No. of Spots	Distance travel by Solvent (cm)	Distance travel by Solute (cm) Short UV (254nm)	R _f -value	hR _f -value	ΔhR _f -value
4	17.2	2.6	0.15	15	
		3.1	0.18	18	3
		6.4	0.37	37	19
		7.5	0.44	44	7

Table-5 shows the Thin layer chromatography data of the sample of *Alambushadi Churna* tablet under short ultra violet ray (254 nm) and it reveals that the distance travels by the solvent is 17.2 cm, number of spots under short ultra violet ray are 4, the distance travels by the solutes seen under short ultra violet ray are respectively 2.6cm, 3.1cm, 6.4cm and 7.5cm. R_f–values are respectively 0.15, 0.18, 0.37 and 0.44. hR_f–values are respectively 15, 18, 37 and 44 and ΔhR_f–values are respectively 3, 19 and 7.

Table-6: Thin layer chromatography data of *Alambushadi Churna* tablet under long ultra violet ray (366 nm)¹⁴

No. of Spots	Distance travel by Solvent(cm)	Distance travel by Solute (cm) long UV (366nm)	R _f -value	hR _f -value	ΔhR _f -value
5	17.2	2.3	0.13	13	
		3.2	0.19	19	6
		4.1	0.24	24	5
		10.5	0.61	61	37
		14.1	0.82	82	21

Table-6 shows the Thin layer chromatography data of the sample of *Alambushadi Churna* tablet under long ultra violet ray (366 nm) and it expresses that the distance travels by the solvent is 17.2 cm, number of spots under long ultra violet ray are 5, the distance travels by the solutes seen under long Ultra violet ray are respectively 2.3cm, 3.2cm, 4.1cm, 10.5cm and 14.1cm. R_f–values are respectively 0.13, 0.19, 0.24, 0.61and 0.82. hR_f–values are respectively 13, 19, 24, 61 and 82 and ΔhR_f–values are respectively 6, 5, 37 and 21.

CONCLUSION

The *Rasa*, *Guna*, *Virya*, *Vipak* and *Karma* of ingredients of *Alambushadi Churna* help to enhance the *Agni* (enzymes), to mitigate the *Ama* (biotoxin), to reduce the aggravated *Vata dosha* (bioforce) and *Kapha dosha* (biofluid) and so, it minimizes the clinical features of *Amavata* (Rheumatoid arthritis). The Physicochemical study on this drug can be concluded that the *Alambushadi Churna* tablet contains more moisture, less inorganic constituents and more water soluble constituents. The Phytochemical study on *Alambushadi Churna* tablet can be concluded that reducing sugars, tannin, phenolic compounds, flavonoids, saponin glycosides and gum are present into the sample of this drug. Thin layer chromatography (TLC) study of *Alambushadi Churna* tablet can be concluded that four phytocostitutents are indicated under short ultra violet ray (254 nm) and five phytocostitutents are indicated under long ultra violet ray (366 nm) into the sample of this drug. But more research work is necessary on this drug for more information and more authenticity for the purpose of better standardization of this drug.

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