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Comparative Physicochemical Study on *Alambusadi* Churna Tablet and *Simhanad Guggulu* Pill

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Abstract

It is internationally recognized that medicinal plants play a major role for providing health benefits more safely to human beings. The complex composition of medicinal plant based drugs has a major challenge for quality control. Maximum Ayurvedic drugs are plant based drugs. Physicochemical analysis is the most important part for standardization of the medicinal plant based drugs. Two most important Ayurvedicdrugs i.e., *Alambushadi Churna* tablet and *Simhanad Guggulu* pill had been selected from Ayurvedic famous books named *BhavaPrakasha* and *BhaishajyaRatnavali*, respectively for comparative Physicochemical study. These two Ayurvedic drugs are mainly and commonly used in the treatment of disease *Amavata* (Rheumatoid arthritis). Preparation and Physicochemical study of both these drugs was carried out in the Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurved University, Jamnagar. This comparative Physicochemical study revealed that *Alambushadi Churna* tablet contains more moisture, less inorganic constituents and more water soluble constituents than *Simhanad Guggulu pill* and hardness as well as disintegration time of *Alambushadi Churna* tablet was less than *Simhanad Guggulu pill.*

Keywords

Alambushadi Churna, Simhanad Guggulu, Physicochemical, *Amavat*, Rheumatoid arthritis

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INTRODUCTION

The increased demand for plant based drugs and their eventual commercialization has given a more concentration on their status. It is being internationally accepted that medicinal plants play a major role in providing health benefits more safely to human beings. Maximum Ayurvedic medicines are plant based drugs. Global acceptances of Indian plant based drugs are still low and most probably inadequacy of quality control is the most important responsible factor for the same. The complex composition of medicinal plant based drugs has a major challenge for quality control. Presently Physicochemical study is an important parameter for standardization of the medicinal plant based drugs. There are many plants based drugs described in Ayurvedic classics in context of treatment purpose of different diseases. Two important Ayurvedic drugs i.e.,*Alambusadi Churna* tablet and *Simhanad Guggulu pill* were selected from Ayurvedic books for comparative Physicochemical study on these two drugs.

Objectives: Comparative evaluation of the data of physicochemical parameters of *Alambushadi Churna* tablet and *Simhanad Guggulu pill*.

MATERIALS AND METHODS

Alambusadi Churna tablet and *Simhanad Guggulu pill* both Ayurvedic drugs are mainly used in disease *Amavata* (Rheumatoid arthritis). According to clinical manifestations and pathogenesis Amavata disease is more simulated to Rheumatoid arthritis[1, 2]. *Alambusadi Churna* is mentioned in *slokas*(Information in Samskrit language) no. 69 to 70 of 26th chapter of *BhavaPrakasha* (Ayurvedic book) [3] and *Simhanad Guggulu* is mentioned in *slokas* no. 190 to 195 of 29th chapter of *BhaishajyaRatnavali*(Ayurvedic book) [4].These two Ayurvedic drugs were prepared in the Pharmacy of Institute for Post Graduate Teaching and Research in Ayurveda, GujaratAyurvedUniversity, Jamnagar. Physicochemical study of these two Ayurvedic drugs (i.e. *Alambusadi Churna* tablet and *Simhanad Guggulu pill*) were carried out in the Pharmaceutical laboratory of Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat AyurvedUniversity, Jamnagar. Uniformity of tablet / pill (weight variation) (average weight), Hardness of tablet/ pill (average), Disintegration time of tablet/ pill, Determination of Loss on drying at 110 ºC,

Ash value (% of total ash), Acid insoluble ash value, Water soluble extractive value and Methanol soluble extractive value of these both Ayurvedic drugs had been observed in Physicochemical studies[5, 6]. *Alambushadi Churna* tablet is a poly herbal Ayurvedic drugs and thirteen Ayurvedic medicinal plants are used in it as ingredients and *Simhanad Guggulu pill* is a herbo-mineral Ayurvedic drugs and six ingredients are used in it[7, 8].Name of the ingredients (Ayurvedic name and Scientific or Botanical name), used part of the ingredients and quantity of used part of the ingredients into the one *Alambushadi Churna* tablet and *Simhanad Guggulu pill* are shown in the table-1 and table-2 respectively.

Table1 Ingredients list of *Alambushadi Churna* tablet

Ingredients (Ayurvedic name)	**Botanical Name**	**Used part**	**Quantity (part)**
Alambusha	*Sphaeranthusindicus* Linn.	Dried mature whole plant	1
Gokshur	*Tribulusterrestris* Linn.	Dried mature Fruit	1
Guduchi	*Tinosporacordifolia*	Dried Stem	1
Vriddhadaraka	*Argyreianervosa*(Burm.f.) Bojer	Dried Root	1
Pippali	*Piperlongum*Linn.	Dried mature Fruit	1
Trivrit	*Operculinaterpathum*Linn.	Dried Root	1
Mustaka	*Cyperusrotundus*Linn.	Dried Rhizome	1
Varuna	*Crataevanurvala*Buch-Ham.	Dried stem Bark	1
Punarnava	*Boerhaviadiffusa*Linn.	Dried mature whole plant	1
Haritaki	*Terminaliachebula* Retz.	Dried mature Fruit	1
Amalaki	*Emblicaofficinalis*Gaertn.	Dried mature Fruit	1
Vibhitaka	*Terminaliabellirica*Roxb.	Dried mature Fruit	1
Sunthi	*Zingiberofficinale*Roxb.	Dried Rhizome	1

Table2 Ingredients list of Alambushadi Churna tablet

Ingredients (Ayurvedic name)	**Scientific or Botanical name**	**Used part**	**Quantity (part)**
Haritaki	*Terminaliachebula* Retz.	Dried mature Fruit	1
Amalaki	*Emblicaofficinalis*Gaertn.	Dried mature Fruit	1
Bibhitaka	*Terminaliabellirica*Roxb.	Dried mature Fruit	1
Guggulu (Shodhita)	*Commiphorawightii*(Arnott) Bhandari	Gum exudates	1
Gandhak (Shodhita)	Sulphar	Mineral	1
Erandataila	*Ricinuscommunis* Linn.	Seed oil	4

RESULTS AND DISCUSSION

Results of Physicochemical study of *Alambushadi Churna* tablet and *Simhanad Guggulu pill* are shown in the Table-3.

Table3 Data of Physicochemical parameters (Quantitative test) of *Alambushadi Churna*tabletand*Simhanad Guggulu pill*

Parameters	**Results**	
	***Alambushadi Churna*tablet**	***Simhanad Guggulu*pill**
Uniformity of tab / pill (weight variation) (average wt)	500.5 mg	502.5 mg
Hardness of tablet / pill (average)	1.225 kg/ cm^2	1.55 kg./cm^2
Disintegration time of tablet / pill	5 minutes	more than 1 hour
Determination of Loss on drying at 110 ºC	4.80 % W/W.	2.30 % W/W.
Ash value (% of total ash)	9.75 % W/W.	10.00 % W/W.
Acid insoluble ash value	2.35 % W/W	2.40 % W/W
Water soluble extractive value	33.00 % W/W.	28.10 % W/W.
Methanol soluble extractive value	13.20 % W/W.	22.20 % W/W.

The data of the above table shows that the average weight of *Alambushadi Churna* tablet was 500.5 mg., Hardness of the *Alambushadi Churna* tablet was 1.225 kg/ cm^2, Disintegration time of this tablet was 5minutes, Loss on drying of this tablet sample at110 ºC was 4.80 % W/W. , Ash value of this tablet sample was 9.75 % W/W. and Acid insoluble ash value, Water soluble extractive value and Methanol soluble extractive value of this tablet sample were observed respectively 2.35 % W/W., 33.00 % W/W., and 13.20 % W/W.. Whereas the average weight of *Simhanad Guggulu pill* was 502.5 mg mg., Hardness of the *Simhanad Guggulu pill* was 1.55 kg/ cm^2, Disintegration time of this pill was more than 1 hour, Loss on drying of this pill sample at110 ºC was 2.30 % W/W., and Ash value, Acid insoluble ash value, Water soluble extractive value and Methanol soluble extractive value of this pill sample were observed respectively 10.00 % W/W, 2.40 % W/W., 28.10 % W/W., and 22.20 % W/W. On the basis of these data it can be evaluated that Average weight of the pill, Hardness of the pill and Disintegration time of the pill of the *Simhanad Guggulu* were more than the *Alambushadi Churna* tablet. Moisture holding capacity was more in the sample of *Alambushadi Churna* tablet than the sample of *Simhanad Guggulu pill*, so shelf life or storage capacity might be more in *Simhanad Guggulu pill* than *Alambushadi Churna* tablet. Inorganic constituents were more in *Simhanad Guggulu pill* in comparison to *Alambushadi Churna*tablet, because Ash value was more in the sample of *Simhanad Guggulu pill*. Water soluble constituents such as Sugars, Glycosides etc were

more in *Alambushadi Churna* tablet, because Water soluble extractive value of its sample was more than the sample of *Simhanad Guggulu pill*. *Guggulu* contains Sterol substance and it is soluble in alcohol and so Methanol soluble extractive value was more in the sample of *Simhanad Guggulu pill* than the sample of *Alambushadi Churna* tablet and Acid insoluble ash value was approximately same in the sample of both drugs.

CONCLUSION

It can be concluded on the basis of this comparative Physicochemical study that the *Alambushadi Churna* tablet contained more moisture, less inorganic constituents and more water soluble constituents than the *Simhanad Guggulu pill* and hardness as well as disintegration time of the *Alambushadi Churna* tablet were less than the *Simhanad Guggulu pill* but more research work is necessary on this subject for more information and authenticity to achieve better drug standardization.

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REFERENCES

1) Madhavakara, Rakshita,V.,Dutta,S.,Shastri,S. (1996). MadhavaNidana with MadhukokoshaVyakyaandVidyotini Hindi Commentry (Part-I).Edited by YadunandanUpadhyaya.Chaukhambha Sanskrit Sanathana.Varanasi. 26th edition. Page no. 460-464.

2) Harrison, T.R.(1998). Harrison's Principles of Internal Medicine(Vol-2).Edited by Anthony S. Fauci et al.McGraw-Hill.New-York.14th edition. Page no. 1885.

3) Bhavamishra (2005).Bhavaprakasha with Vidyotini Hindi Commentary(Part-II).Edited by Brahma SankaraMishra.Chaukhambha Sanskrit Sansthana. Varanasi.9th edition. Page no. 287.

4) Govindadassen(2005). BhaishaijyaRatnavali with Siddhiprada Hindi commentary.Editedby Siddhi Nanda Mishra. ChaukhambhaSurabharatiPrakashan.Varanasi.1st edition.Page no. 610.

5) Florence, A. T., Attwood, D. (2006).Physicochemical Principles of Pharmacy.Pharmaceutical Press. London.

6) Harborne, J. B .(1984).Phytochemical methods. Chapman and Hall, Landon, 2nd edition.

7) Sharma, P.V.(1986). DravyagunaVijnana (Vol. II). ChaukhambhaBharati Academy. Varanasi. 8th edition.

8)Chopra, R. N.(1959). Indigenous Drugs of India.U. N. Dhur and Sons Pvt. Ltd. Calcutta.2nd edition.