

**PRESENCE OF ASHWAGANDHA (WITHANIA SOMNIFERA DUNAL)
AMONG VARIOUS FORMULATIONS AND DOSAGE FORMS FOR
VARIOUS THERAPEUTIC ADMINISTRATIONS: AN AYURVEDIC
BENCHMARK FOR DRUG DESIGNING AND MODELLING**

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ABSTRACT

Ashwagandha is one of the important herbs in *Ayurveda*. Since time immemorial, it has been mentioned in traditional literature for various disease conditions and to improve the health. It is also used as folklore medicine. Out of its broad therapeutic spectrum, the herb is very well known for its aphrodisiac activity. The Latin name of *Ashwagandha* is *Withania somnifera* L. Dunal. It is also has been described in various Nighantu. This shows the wide applicability and importance of herb. This herb is screened for various pharmacological activities like, anti-inflammatory, analgesic, chondroprotective, anti-oxidant etc. This present review explains the facts about *Ashwagandha* with some justification. The data about *Ashwagandha* (*Withania somnifera*) has been collected, classified, explained in this article might help to

understand this herb more clearly/precisely.

KEYWORDS: *Ashwagandha*, *Ayurveda*, Conceptual review, *Withania somnifera*.

INTRODUCTION

The potent Ayurvedic herb *Ashwagandha* is being used since Vedic period and even on much larger scale nowadays. It is commonly known as *Ashwagandha* in Sanskrit and *Asgandh* in Hindi. Winter cherry in English and *Ghodakuna/Asandh* in Gujarati. It has many synonyms like *Hayagandha*, *Vajigandha*, *Turagagandha*, *Hayahvaya*, *Turagi*, *Ashwahva*, *Vaji*, *Ashwa*, *Varahakarni* etc. *Ashwagandha-Withania somnifera* L. Dunal, (Syn. *Physalis somnifera* L., *Withania kansuensis* Kuang & A. M. Lu., *Withania microphysalis* Suess) colloquially known as Indian ginseng of family Solanaceae.

Ashwagandha is a branched erect undershrub medicinal plant widely used in Indian traditional system of medicine like *Ayurveda*, Unani and Siddha science ancient decades. *Ashwagandha* is a 1-5 ft. high shrub with ovate, subacute, entire, more or less minutely stellately pubescent leaves; flowers greenish or lurid-yellow; having red, smooth berry.^[1] It is used as single herb as well as in various multi-ingredients formulations like, *Agurvadi Taila*,^[2] *Trayodashanga Guggulu*,^[3] *Phala Ghrita*^[4] etc. It is the best aphrodisiac and antioxidant drug of *Ayurveda*. All these information regarding *Ashwagandha-Withania somnifera* is available scattered with some limitations. If it is arranged at one place, taking all its parameters, synonyms, properties, indications, applications etc., it might be helpful to understand the herb more clearly.

MATERIAL AND METHOD

In this review study, various texts were taken for consideration. Starting from Vedic literature, various Ayurvedic texts like 24 Samhita/Chikitsagrantha were reviewed thoroughly. Along with these, modern books, articles, online books, webpages etc. were also accessed. From these, all the specific data denoted for *Ashwagandha* were collected, classified and arranged as per observations and results given below.

OBSERVATIONS AND RESULTS

From above mentioned number of texts various references of *Ashwagandha* are obtained showing its large-scale utility and importance. Root is the medicinally useful part of *Ashwagandha*. In some texts like, Kaiyadeva Nighantu, Sharangdhara-samhita, Bhavaprakasha-samhita, Bhaishajya Ratnavali, its collection in *Ardra Avastha* is mentioned. It is found throughout the drier parts of India in waste places and on bunds, in areas of Upper Gangetic Plain, West Bengal, Bihar, Orissa, Gujarat, Konkan, Deccan, Karnataka and

Coimbatore.^[5] Major chemical constituents are Withaferin-A, withanosides I-VII, withanolides A, B and D, 17-hydroxy-27-deoxywithaferin A, withanone.

Withania somnifera is used as a substitute for *Kakoli* and *Kshirakakoli* of *Ashtavarga*, which are identified as *Lilium polphyllum* D. Don and *Fritillaria roylei* Hook. This plant is often adulterated with *Withania coagulans*.^[6]

Other details of *Ashwagandha* - *Withania somnifera* are classified and tabulated as per below given data.

Different dosage forms

The different dosage forms can be prepared according to *Yukti*, considering *Samyoga*, *Vibhaga*, *Kala*, *Samskara* etc. The main objective behind different dosage forms is to make it more compatible/palatable without losing potency or efficiency of drug. As pharmaceutical field of *Ayurveda* advanced, various dosage forms of *Ashwagandha* were also introduced by different Acharya. Various dosage forms like, *Asava*, *Kshara*, *Varti*, *Masi*, *Guggulu*, *Arishta* were introduced in multiple ingredients' formulations as well as in single use of *Ashwagandha*.

Table No. 1: First time introduced dosage forms of *Ashwagandha*.

No.	Dosage form	Formulation	Indication	Reference
1.	<i>Asava</i>	<i>Mulasava</i>	-	Cha.Su.24
2.	<i>Kshara</i>	<i>Ashwagandha Kshara</i>	<i>Hikka, Shvasa</i>	Cha.chi.17/117
3.	<i>Varti</i>	<i>Dhumapana Yoga</i>	<i>Kasa</i>	Cha.Chi.18/75
4.	<i>Avaleha</i>	<i>Drakshavaleha</i>	<i>Yakshma</i>	Su.U.41/41
5.	<i>Gutika</i>	-	<i>Bhutapratishedha</i>	A.S.U.8/9
6.	<i>Masi</i>	<i>Ashwagandha Masi</i>	<i>Kaphaja Shvasa</i>	A.H.Chi.4/39
7.	<i>Guggulu</i>	<i>Trayodashanga Guggulu</i>	<i>Katigraha, Gridhrasi</i>	V.M. 22/90
8.	<i>Pinda</i>	<i>Brihallashunapinda</i>	<i>Manyastambha</i>	G.N.Pra.Kha.4/291
9.	<i>Modaka</i>	<i>Ashwagandhadi Modaka</i>	<i>Vajikarana</i>	G.N.10
10.	<i>Lauha Kalpana</i>	<i>Lauha Rasayana</i>	<i>Rasayana</i>	V.S.77/226
11.	<i>Sura</i>	<i>Mritasanjivani Sura</i>	<i>Dehadardhyakara</i>	B.R.5/1244
12.	<i>Arishta</i>	<i>Saraswatarishta</i>	<i>Ayurviryakara</i>	B.R.73/181

Indications

Various indications of formulations as well as of single *Ashwagandha* are available in *Samhita* and *Chikitsagrantha* on broad spectrum. They include *Vyadhi* of different *Srotas-dushti* like, *Rasavaha*, *Raktavaha*, *Mamsavaha*, *Asthivaha*, *Annavaha*, *Mutravaha*, *Manovaha*

etc. Some of these are *Nija*, while some are *Agantuja*. Some of them indications are mentioned below.

Table No. 2: Indications of *Ashwagandha* formulations.

No.	Indication	No.	Indication	No.	Indication
1.	<i>Shita Jvara</i>	14.	<i>Udararoga</i>	27.	<i>Arsha</i>
2.	<i>Pliharoga</i>	15.	<i>Mutragraha</i>	28.	<i>Kaphaja Vatarakta</i>
3.	<i>Grahani</i>	16.	<i>Anantavata</i>	29.	<i>Gulma</i>
4.	<i>Kaphaja Shotha</i>	17.	<i>Vranautsadana</i>	30.	<i>Kaphaja Visarpa</i>
5.	<i>Kubja</i>	18.	<i>Prameha</i>	31.	<i>Atisara</i>
6.	<i>Pakshaghata</i>	19.	<i>Akshepaka</i>	32.	<i>Ardita</i>
7.	<i>Kapholbana Shvasa</i>	20.	<i>Ashmari</i>	33.	<i>Vata Jvara</i>
8.	<i>Shvadamshttra Upadrava</i>	21.	<i>Jangha-Uru-Trik-Parshva-Amsa-Sandhi Vata</i>	34.	<i>Majja-Tvak-Asthi-Snayu-Sandhistha Maruta</i>
9.	<i>Parinama Shula</i>	22.	<i>Pandu</i>	35.	<i>Amlapitta</i>
10.	<i>Manodosha</i>	23.	<i>Pratishyaya</i>	36.	<i>Murchchha</i>
11.	<i>Bhutagraha</i>	24.	<i>Shitapitta</i>	37.	<i>Vatashotha</i>
12.	<i>Anaha</i>	25.	<i>Hridroga</i>	38.	<i>Gridhrasi</i>
13.	<i>Kaphajanya Artavadosha</i>	26.	<i>Karnashula</i>	39.	<i>Kamala</i>

Amayika Prayoga

In Ayurvedic medical science, various types of treatment protocols are given. These are *Shamana*, *Shodhana*, *Viparita-arthakari*, *Viparitakari* etc. All these treatment protocols can be achieved through various medicinal drugs. These may be through multiple ingredients containing formulations or through single drug. *Ashwagandha* is also one herb, which is being used as an ingredient of formulations as well as a single herb. *Amayika Prayoga* of *Ashwagandha* obtained from various *Samhita* and *Chikitsagrantha* are tabulated below.

Table No. 3: Various single administration indications of *Ashwagandha*.

No.	Dosage form	Indication	Reference
1.	<i>Kshara</i>	<i>Hikka, Shvasa</i>	Cha.Chi.17/117
2.	<i>Churna-Utsadana</i>	<i>Urustambha</i>	Cha.Chi.27/50
3.	<i>Kshirapaka</i>	<i>Yakshma</i>	Su.U.41/42
4.	<i>Ghrita</i>	<i>Yakshma</i>	Su.U.41/42
5.	<i>Ghrita</i>	<i>Shosha</i>	A.S. Chi.7/37
6.	<i>Churna</i>	<i>Vataroga</i>	A.S. Chi.7/58
7.	<i>Kshira</i>	<i>Putrakamana</i>	A.S. U. 49/92
8.	<i>Masi</i>	<i>Kapholbana Shvasa</i>	A.H. Chi. 4/39
9.	<i>Kshira</i>	<i>Shosha</i>	A.H. Chi. 5/25
10.	<i>Churna/Kalka/ Ghrita</i>	<i>Medha-Dhee-Vayaprada</i>	A.H. U. 39/61
11.	<i>Ghrita</i>	<i>Pustikrit</i>	V.M. 67/10
12.	<i>Churna</i>	<i>Rasayana</i> and in <i>Krishna</i>	V.M. 69/23
13.	<i>Ghrita</i>	<i>Vataghna, Vrishya</i>	C.D. 22/83

14.	<i>Kalka</i>	<i>Krimiroga, Shotha, Udara</i>	C.D. 36/48
15.	<i>Ghrita</i>	<i>Garbhadharana</i>	C.D. 61/27
16.	<i>Varti</i>	<i>Dashanaghuna</i>	R.M. 5/13
17.	<i>Mula</i>	<i>Dashanaghuna</i>	R.M. 5/14
18.	<i>Ghrita</i>	<i>Vandhya</i>	G.N.Tri. 5/1
19.	<i>Ghrita</i>	<i>Kumarapushtikrit</i>	G.N.Tri. 11/90
20.	<i>Kvatha</i>	<i>Parinamashula</i>	V.S. 33/8
21.	<i>Churna</i>	<i>Nashtanidra</i>	V.S. 76/13
22.	<i>Ghrita Mardana</i>	<i>Lingavriddhikara</i>	S.S.U.Kha. 11/115
23.	<i>Churna</i>	<i>Shastrakshataksheena</i>	V.M.4/2
24.	<i>Taila Abhyanga</i>	<i>Krishna</i>	B.S. 40/9
25.	<i>Ghrita</i>	<i>Snayuka</i>	B.S. 58/8
26.	<i>Kshira</i>	<i>Yonivyapad</i>	Y.R. <i>Yonivyapadchi</i> ./2
27.	<i>Kalka Lepa</i>	<i>Visha</i>	Bs.R. 23
28.	<i>Churna Lepa</i>	<i>Grivastambha</i>	B.R. 26/25
29.	<i>Kvatha</i>	<i>Mutrakrichchha</i>	S.B.M.M. <i>Mutraghatachi</i> ./1
30.	<i>Ghrita</i>	<i>Vataghna, Mamsavivardhaka</i>	S.Y. 6/8
31.	<i>Kshira</i>	<i>Sarpavisha</i>	S.Y. <i>Vishachi</i> ./6

Data of *Ashwagandha* about *Amayika Prayoga* shows that it can be used through various dosage forms for various disease conditions internally as well as externally. *Ghrita* dosage form is a maximum time indicated form for *Ashwagandha's Amayika Prayoga*. Following *Ghrita Kalpana*, *Kshira*, *Churna*, *Kalka*, *Kvatha*, *Taila* etc. are further more important *Kalpana* for single *Ashwagandha* herb. There are also some references of dosage forms, which are used less likely. Those are *Kshara*, *Masi* and *Varti*. Moreover, apart from all these dosage forms, *Ashwagandha's* root as a whole is also used in *Krimidanta*. Even by using single *Ashwagandha*, one can achieve effect in *Rasa Dhatugata Vyadhi*, *Shukra Dhatugata Vyadhi*, *Mutravaha Srotas Vyadhi*, *Artavavaha Srotas Vyadhi*, *Visha* etc. In addition to *Sharirika Vyadhi*, *Ashwagandha* is also mentioned for *Manasika Vyadhi* as a single herb. *Vrishya* and *Rasayana* effects also can be achieved through single *Ashwagandha* herb.

Number of formulations in various *Samhita/Chikitsagrantha*

Ayurvedic compendia includes various *Samhita*, *Chikitsagrantha* and *Nighantu*. Among them *Samhita* and *Chikitsagrantha* contain treatment protocols for various disease. For that purpose, large number of formulations are mentioned in *Samhita* and *Chikitsagrantha*. *Ashwagandha* is a very useful herb, being used for man-kind since Vedic period. Though, in Vedic period only one reference was found about *Ashwagandha* in *Ashvalayana Grihyasutra*. Then onwards, use of *Ashwagandha* was increased progressively and various number of formulations can be traced containing *Ashwagandha*. Maximum number of formulations are found from *Vangasena-samhita*, while lowest in *Siddhabhaishajya Manimala*. Ayurveda

Prakasha text doesn't contain any reference about *Ashwagandha*. In Brihatrayi, maximum number of formulations are found in Ashtanga-samgraha.

Table No. 4: Number of formulations of *Ashwagandha* in *Samhita/Chikitsagrantha*.

Sr. No.	<i>Samhita/ Chikitsagrantha</i>	No. of formulations
1.	Charaka-samhita ^[7]	26
2.	Sushruta-samhita ^[8]	27
3.	Ashtanga-samgraha ^[9]	51
4.	Ashtanga-hridaya ^[10]	25
5.	Kashyapa-samhita ^[11]	8
6.	Bhela-samhita ^[12]	5
7.	Vrinda-madhava ^[13]	61
8.	Chikitsakalika ^[14]	7
9.	Chakradatta ^[15]	38
10.	Raj-martanda ^[16]	13
11.	Harita-samhita ^[17]	4
12.	Gada-nigraha ^[18]	89
13.	Vangasena-samhita ^[19]	103
14.	Ayurveda-prakasha ^[20]	-
15.	Sharangdhara-samhita ^[21]	13
16.	Vaidya-manorama ^[22]	10
17.	Vaidya-chintamani ^[23]	50
18.	Bhavaprakasha-samhita ^[24]	39
19.	Yogaratanakara ^[25]	59
20.	Basavarajiyam ^[26]	18
21.	Bhaishajya-ratnavali ^[27]	95
22.	Siddhabhaishajya Manimala ^[28]	1
23.	Siddhayoga-samgraha ^[29]	14
24.	Sahasrayoga ^[30]	60

Dosage forms of formulations of *Ashwagandha*

Different multiple dosage forms are the main features of Ayurvedic medicine. Dosage form affects in-process as well as in-treatment effect of a herb. Through *Ghrita-Taila-Vasa-Mahasneha* formation, lipid solubility of drug can be preserved and quality of a formulation can be enhanced. Same way efficacy can be achieved, through *Kshira Kalpana* (for *Kshira* soluble herb), *Asava-Madhya-Sura Kalpana* (for alcohol soluble herb). Formulations of *Ashwagandha* are also subjected to *Masi, Lauha, Rasakriya, Phanta Kalpana*. Maximum number of formulations are observed as of *Taila Kalpana*.

Table No. 5: Dosage forms of formulations of *Ashwagandha*.

Sr. No.	Type of <i>Kalpana</i>	No.	Sr. No.	Type of <i>Kalpana</i>	No.
1.	<i>Ghrita</i>	129	14.	<i>Varti</i>	5
2.	<i>Taila</i>	282	15.	<i>Kshira</i>	14

3.	Vasa	2	16.	Asava	4
4.	Mahasneha	1	17.	Arishta	6
5.	Churna	129	18.	Madya	1
6.	Gutika	12	19.	Sura	1
7.	Guggulu	17	20.	Avaleha	34
8.	Guda	1	21.	Phanta	1
9.	Modaka	9	22.	Mamsarasa	2
10.	Pinda	1	23.	Rasakriya	1
11.	Kalka	72	24.	Masi	1
12.	Kwatha	81	25.	Lauha	1
13.	Kshara	1			

Applications of Ashwagandha

Ayurvedic *Dravyabhuta Chikitsa* can be divided under two categories viz., *Antahaparimarjana* and *Bahirparimarjana*. Both of these are said to be equally effective applications. Most of Ayurvedic herbs can be used through both of these ways. *Ashwagandha* is also one among them. Number of external applications are found slightly higher than internal application for *Ashwagandha*. These shows higher efficacy of *Ashwagandha* internally as well as externally.

Table No. 6: Number of internal and external application of Ashwagandha.

Internal	External
576	603

External Applications of Ashwagandha

As applications of *Ashwagandha* are found maximum as in external applications, these can be further divided under various external applications. Maximum number of external applications are found as *Abhyanga*, followed by *Anuvasana Basti*, *Nasya* and *Lepa*. Other external applications are also found scattered in different disease treatment.

Table No. 7: Number of various external application of Ashwagandha.

Sr. No.	Application	No.	Sr. No.	Application	No.
1.	Lepa	77	12.	Niruhabasti	17
2.	Swedana	6	13.	Anuvasana Basti	98
3.	Pradeha	8	14.	Abhyanga	241
4.	Nasya	79	15.	Varti	3
5.	Avagaha	4	16.	Udvartana	17
6.	Karnakshipurana	9	17.	Prakshalana	3
7.	Parisheka	8	18.	Gandusha	2
8.	Utsadana	9	19.	Shirobasti	2
9.	Mardana	3	20.	Upanaha Sweda	2
10.	Dhupana	5	21.	Snana	1
11.	Dhuma	1	22.	Anjana	8

Reported pharmacological activities

Current globalization of Ayurvedic treatment is leading world towards exploration of Ayurvedic herbs. For this purpose, various screening of Ayurvedic herbs are being carried out on various laboratorial instruments, software, lower animals etc. Screening of activities of Ayurvedic herbs have been mushroomed in various bio-technological sectors. It possesses one contrast point from Ayurveda ideology, that is single chemical entity. Pharmacological activities of a herb is being screened just through single chemical entity, and not through whole herb. This may reflect inappropriate result about any herb. *Ashwagandha* is also one of the over explored herbs of *Ayurveda* for pharmacological screening. Various proven pharmacological activities of *Ashwagandha* are listed below. They include various systemic, organ-wise as well as pathogenesis-wise screened activities.

Table No. 8: Pharmacological activities of *Ashwagandha*.

No.	Activity	No.	Activity	No.	Activity
1.	Cardioprotective ^[31]	10.	Anti-inflammatory ^[32]	19.	Analgesic effect ^[33]
2.	Anti-bacterial ^[34]	11.	Muscle relaxant ^[35]	20.	Anti-fungal ^[36]
3.	Immunomodulatory ^[37]	12.	Antidepressant effect ^[38]	21.	Anti-arthritis ^[39]
4.	Anxiolytic ^[40]	13.	Adaptogenic ^[41]	22.	Chemoprotective ^[42]
5.	Chondroprotective ^[43]	14.	Anabolic ^[44]	23.	Anti-microbial activity ^[45]
6.	Anti-oxidant ^[46]	15.	Antiparkinsonian ^[47]	24.	Anti-stress activity ^[48]
7.	Hypotensive ^[49]	16.	Neuroprotective ^[50]	25.	Sedative ^[51]
8.	Thyrotropic effect ^[52]	17.	Anti-malarial ^[53]	26.	Nephroprotective ^[54]
9.	Anti-granuloma ^[55]	18.	Hypoglycaemic ^[56]	27.	Anti-pyretic ^[57]

DISCUSSION

Ashwagandha-Withania somnifera is an all-time useful potent herb of *Ayurveda*. Useful part of *Ashwagandha* plant is *Mula*, so all the formulations were prepared with it. But there is a single reference of *Ashwagandha Patra* in *Yoga-ratnakara Chikitsasagrantha* as a *Swedana Dravya* in *Vatavyadhi*. Apart from this one reference was also available in *Shaligram Nighantu*, quoting reference of *Shodhala Nighantu* that *Patralepa* of *Ashwagandha* was used in *Granthi*, *Ganda* and *Apachi*. Though such reference was neither found in currently available textbook of *Shodhala Nighantu* nor on e-*Nighantu* of *Shodhala Nighantu*. Government of India, Ministry of AYUSH also has passed advisory for refrain from use of *Ashwagandha* leaves in October, 2021.

It is found in dry land regions. In ancient Ayurvedic text *Sushruta Samhita* this kind of land is denoted to *Agni-Vayu-Akasha Mahabhuta-adhikyayukta Bhumi*. Plants growing on such kind of land are *Vamana Dravya- Urdhwabhagahara Dravya*. *Ashwagandha* is also enumerated

under *Urdhwabhagahara Dravya* by Acharya Sushruta. This ancient reference shows linkage of plant native to its activity.

For substitute of one herb Acharya Bhavaprakasha suggests to use another herb, having some degrees of similarity in properties with each other. *Ashwagandha* is said to be used in substitution of two herbs from *Ashtavarga*. They are *Kakoli* (*Lilium polphyllum* D. Don) and *Kshirakakoli* (*Fritillaria roylei*). They are having similarities in *Madhura Rasa*, *Brimhana* and *Shukravardhaka Karma*, indications in *Shosha* and *Jwara Roga*.

Adulteration is a current worldwide burning issue in market supply of raw herbs. In case of *Withania somnifera*, *Withania coagulans* is being supplied and used as adulterant. There can be various reasons behind that like, lack of identification knowledge, intentionally or in unavailability of *Withania somnifera* herb. This may be due to – as both herbs belong from same family, so having so many similarities in morphological features, which can create confusion in proper identification and differentiation of both herbs. Scientists have screened large number of same biological activities of both herbs in pre-clinical studies. In the current era of industrialization, where extracts and chemical compounds of herbs are being widely explored and marketed, same major chemical compounds - Withanolides and Withaferin A are being extracted from both herbs, leading to increased use of *Withania coagulans*.

As the field of *Ayurveda* pharmacy advanced different types of dosage forms were being introduced. Formulations of *Ashwagandha* were also introduced with different dosage forms at various period. Different indications of *Ashwagandha* are described in *Nighantu*. Apart from that, various other indications are also available in *Samhita* and *Chikitsasagrantha* on broad spectrum with other herbs. After reviewing all indicated diseases, it can be quoted that *Ashwagandha* is a herb, which acts from *Rasa Dhatu* to *Shukra Dhatu* effectively. Indications of *Ashwagandha* mainly are the diseases, which are having *Vata* and/or *Kapha Adhikya*, having *Srotorodha* at various level.

There are two types of *Vyadhi*, viz. *Nija* and *Agantuja*. *Ashwagandha* does not act only on *Nija Vyadhi*, it also acts on *Agantuja Vyadhi*, viz. *Sarpavisha*, *Shwadamshttra Upadrava*, *Bhutagraha* etc. There are some other uses of *Ashwagandha* found in literatures are- as *Basti Dravya* in *Basti-atiyoga*, for *Abhraka-marana*, after *Rakta-visravana* through *Jalauka* as *Kshirivrikshadi Ghritlepana*.

In current era of plants-based medicines, *Ashwagandha* is widely being explored and used. In recent pandemic condition of COVID-19, *Ashwagandha* was prime choice of physicians, researchers as well as Ministry of AYUSH. It was included in COVID-19 treatment guidelines as preventive, in associate cardiovascular morbidity and in post COVID management too.

There are multiple ingredients' formulations as well as single use of *Ashwagandha* can be seen. There are total 59 single uses of *Ashwagandha*, but after discarding repeating uses, 31 single uses can be found in nutshell.

Looking back to ancient time, as in Vedic period *Ashwagandha* is mentioned as *Nasya Dravya* only by Ashvalayana Grihyasutra. But after that widespread use of *Ashwagandha* started from the Samhita period. In *Samhita-kala*, it is mentioned in various treatment protocols. Maximum number of formulations of *Ashwagandha* (103) are described in Vangasena-samhita.

There are various dosage forms of formulations of *Ashwagandha*. But major numbers are of *Sneha Kalpana*. It shows easy and excessive solubility of *Ashwagandha* in lipid media during preparation, as well as easy and effective ADME process in human body. Some indications are also found of whole root to be used alone as in *Krimidanta*.

Ashwagandha is a herb, which can be used externally as well as internally with different applications. Large number of external applications suggests its easy and effective local permeability. maximum external applications of *Ashwagandha* formulations are *Abhyanga*, *Anuvasana Basti* and *Nasya*, as we have seen earlier that most of the formulations are with *Sneha Kalpana*. *Lepa* is in the succeeding number of applications after *Sneha Kalpana*.

All parts of *Ashwagandha* plant are being screened for various pharmacological activities. Moreover, its major chemical compounds are also being screened for various biological activities. Withanolide-D possess immunodepressive and anti-metastatic activity, tumor growth inhibition activity. Withaferin-A is claimed to possess anti-cancerous, anti-arthritis, bactericidal, fungicidal, anti-inflammatory, anti-angiogenic. Withanone is claimed to having anti-inflammatory, anti-arthritis activity. Most of the pharmacological activities of *Ashwagandha* are proven using Swiss Albino mice and Wistar rats. Apart from those, dogs,

rabbits, chicks are also being used to screen the activities of *Withania somnifera*. Oral route is widely used route of administration for pre-clinical experiments for it.

CONCLUSION

Ashwagandha is an important Ayurvedic plant which have been mentioned in many texts with various therapeutically uses since Vedic Kala. In *Samhita* and *Chikitsa*grantha maximum number of *Taila Kalpana* are found. It is having wide applicability as external as well as internal. As various single herb references of *Ashwagandha* are found in Ayurvedic literature for different kind of disease conditions, so in current practice more properties of *Ashwagandha* can be screened clinically. Apart from this, *Ashwagandha* fulfill both the aims of *Ayurveda* by having disease curing properties and health maintaining *Rasayana* properties. Thus, *Ashwagandha* acts as panacea herb for human health.

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