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A comparative study of root of *Ginseng* and *Ashwagandha* as *Rasayana* (Adaptogenic effect)

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ABSTRACT

Herbs are the backbone of Ayurvedic system of medicine and various researches have been carried out all over the world to revalidate their efficacy. Herbs in Ayurveda aims not only relieves from diseases but also are useful for maintaining longevity of life. *Ginseng* is the most widely internationally recognized herb used in traditional medicine from more than 2000 years. Its root provides generalized strengthening effect on the body like Adaptogenic / Stress protective effect. But in today's era, it is gaining popularity because of its "Adaptogenic effect". *Ashwagandha* also known as *Withania somnifera*, is used as a *Rasayana* in Ayurvedic system of medicine. Its root also shows great Adaptogenic effect (*Rasayana*) on the body. **Aims and objectives:** 1. A comparative study of root of both the drugs w.s.r to its organoleptic characters and chemical constituents. 2. To establish *Ginseng* as a potent *Rasayana* drug as same as *Ashwagandha*. **Material and methods:** 1. Data related to chemical constituents and organoleptic characters of roots of both the drugs will be collected. 2. Information related to *Ginseng* and *Ashwagandha* will be evaluated.

Key words: *Ashwagandha*, *Ginseng*, *Adaptogenic*, *Rasayana*, *Herbs*, *Ayurveda*

INTRODUCTION

Herbs are the backbone of *Ayurvedic* system of medicine and various researches have been carried out all over the world to revalidate their efficacy. Herbs in *Ayurveda* aims not only relieves from diseases but also are useful for maintaining longevity of life.

Ayurveda is the science which deals with every aspect of life and is divided into 8 branches that are helpful to meet specific needs in the process of preventing disease and maintain body's health. This branch

Rasayana has been practiced since ancient times. There is so much importance given to this branch of *Ayurveda* that the chapters shows a foremost place in *Charak Samhita*, *Sushrut Samhita* and *Ashtanga Hridaya*. In *Charak Samhita*, *Rasayana* has been described in the first chapter of *Chikitsa Sthana*,^[1] in *Sushruta Samhita*,^[2] it is pushed back to chapters 27 to 30 and in *Ashtanga Hridaya*, it is described only in 39th chapter of *Uttar Tantra*.^[3] *Rasayana* consists of a specialized use of herbs and herbomineral formulations. *Rasayana* means the way for attaining excellent *Rasadi Dhatus* thus improves the quality of *dhatus* that lead to long activity and strength. In *Ayurveda*, various medicinal plants or Herbs have been described as *Rasayanas*.

Ashwagandha has been described by Acharya *Charak* one of the best *Rasayanas*. *Ashwagandha* (*Withania somnifera*) also called as Indian ginseng. Its roots are considered as *Rasayanas* that promotes the health and longevity by fighting against disease, revitalizing the body in tough conditions and arrests the aging process. It is used in stress and anxiety related condition.

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Ginseng is the most widely internationally recognized herb used in traditional medicine from more than 2000 years. Its root provides generalized strengthening effect on the body like Adaptogenic/ Stress protective effect. But in today's era, it is gaining popularity because of its "Adaptogenic effect". Ginseng is a medicinal plant used in various conditions because of its antioxidant and stress relieving property. Ginseng is also known as Panax ginseng and is in important medicine in East Asian countries like Japan, Korea, China, etc. The word Panax is derived from "Panacea" that means cure for all disease and works for longevity as well as physical strength for the body.^[4] Adaptogenic works at molecular level that regulates a stability between Pituitary, Hypothalamic and Adrenal glands. It not only helps the body to deal with stress but also increases longevity and quality of life.

AIMS AND OBJECTIVES

1. A comparative study of root of both the drugs w.s.r. to its organoleptic characters and chemical constituents.
2. To establish *Ginseng* as a potent *Rasayana* drug as same as *Ashwagandha*.

MATERIALS AND METHODS

Data related to chemical constituents and organoleptic characters of roots of both the drugs were collected.^[5,6]

Information related to *Ginseng* and *Ashwagandha* were evaluated.

Organoleptic Characters

Parameters	Ginseng	Ashwagandha
Color	White	Yellowish brown or Light brown
Taste	Sweet and bitte	Bitter and Acrid
Smell	Feeble odor	Smells like horse urine
Shape and Size	Short and Size upto 6 to 18 inches	Tuberous root and is like ginger or carrot shaped

Fracture	Short and Mealy	Short and powder
Potency	Little cold	Hot

Powder microscopy

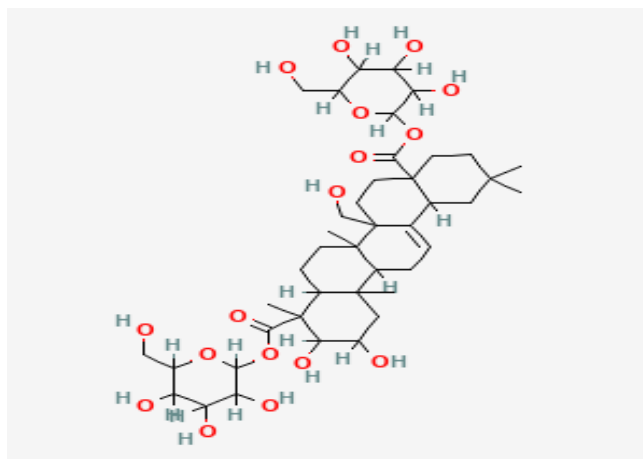
Ginseng and *Ashwagandha*:

Both have Xylem, Phloem and Cork

Chemical constituents

Ginseng

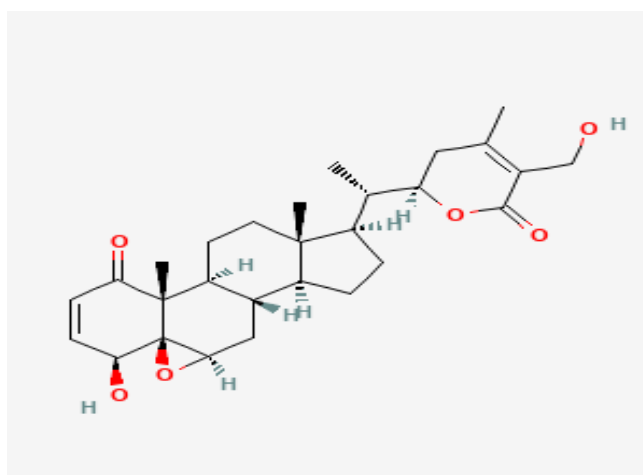
Polysaccharides, alkaloids, glucosides, phenolic acid (salicylic acid, vanilic acid), gomsin, thiazole, ginsenoside, amino acids like arginine, glutamic acid, leucine, proline, serine, etc.



Chemical formula- $C_{42}H_{66}O_{17}$

Ashwagandha

Withaferin, withanolide, withanone, somnitol, somnitol, tropine, nicotine, solasodine, somniferin



Chemical formula- $C_{28}H_{38}O_6$

Ayurvedic properties of Ashwagandha^[7]

- *Rasa* (Taste) - *Katu* (pungent), *Tikta* (bitter) and *Kshaya* (pungent)
- *Guna* (Quality) - *Snighdha* (Unctuous) and *Laghu* (Light)
- *Veerya* (Potency) - *Ushna* (hot)
- *Vipaka* (undergoes taste conversion after digestion) - *Madhura* (sweet)
- Effect on *Tridosha* - Balances all the three *Doshas* but especially *Kapha* and *Vata Dosh*

Properties of Ginseng

Potency - Cold^[8]

OBSERVATIONS AND RESULTS**Table of similarities and dissimilarities**

From the above data, we find that both *Ashwagandha* and Ginseng have significant anti stress adaptogenic effect. The extracts of *Ashwagandha* produce GABA-like activity which shows anti-anxiety effects. GABA (Gamma Amino-butyric acid) is an inhibitory neurotransmitter present in brain and its main function is to decrease neuronal activity and inhibits the nerve cells. This property shows a calm effect on the brain. As excess neuronal activity may lead to restlessness as well as insomnia but GABA as an inhibitory neurotransmitter inhibits the number of nerve cells that fire up in brain and helps to reduce stress, anxiety, uplift mood and induce sleep. As per Ayurveda it has been used since ancient times to stabilize the mood in those patients who are suffering with behavioral disturbances. *Ashwagandha* is the most widely spread tranquilizer used in India and holds a same position of importance as similar to ginseng in China and it is due to the presence of Somniferin and salicylic acid in *Ashwagandha* and Ginseng respectively. Salicylic acid works as an adaptogenic by suppressing the expression of cyclooxygenase and hence, reduces the production of prostaglandins. It is also believed that strength behind the ginseng root stems from its resemblance to human body and this word 'Ginseng' is derived from Chinese word renshen which means "Man Root".

The similarities and dissimilarities are;

Particulars	Ginseng	Ashwagandha	Similarities	Dissimilarities
<i>Rasa</i> (Taste)	Sweet and Bitter	Sweet, Bitter and Astringent	✓	
<i>Guna</i> (Quality)		Light and Unctuous		✓
<i>Veerya</i> (Potency)	Little cold	Hot	✓	
<i>Vipaka</i> (Post digestion effect)	-	Sweet	-	-
Action		Balances all the three <i>Doshas</i>		✓

DISCUSSION AND CONCLUSION

From the above observation, it is concluded that though both the drugs differ in their organoleptic characters like potency of Ginseng is little cold while the Potency of *Ashwagandha* is hot, in powder microscopy-Xylem, Phloem and Cork is found but Ginseng contains crystals of Calcium oxalate, and chemical constituents like *Ashwagandha* contains Somniferin and ginseng possess Salicylic acid, but exerts similar Adaptogenic effect i.e., Physical and mental stress reliever in the body.

So, ginseng works as an Adaptogenic because of the presence of salicylic acid that reduces the production of Prostaglandins and *Ashwagandha* works as Adaptogenic due to the presence of Somniferin in it which is a tranquilizer in nature. Also, *Ashwagandha* and Ginseng always stood point of attraction in consuming reciprocally by native India and East Asian countries.

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