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Review of *Khuskhus* (*Khaskhas*) (Seeds of *Papaver Somniferum* Linn.) with special reference of Ayurveda Medicine

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ABSTRACT

Ayurveda is an ancient and traditional system of Indian medicine. A large number of herbal drugs are mentioned in Ayurved system of medicine, one of them is *Ahiphen* that is *Papaver somniferum* Linn. Herbal drugs are derived from plants as whole or its part i.e. roots, stem, bark, leaves, flower, fruit and seeds for the medicinal purposes. *Khaskhas* or *Poshtadana* or poppy seeds are the seeds of *Ahiphen* (*Papaver somniferum* Linn.) which belong to family *Papaveraceae*. Seeds contain a large percentage of a bland fixed oil called Maw or Poppy Oil. Poppy seeds are demulcent and nutritive, also mild astringent. According to Ayurveda literature it possesses most important therapeutic values. In this paper we have provide a review on habitate and phytochemistry with special reference to Ayurveda Medicine.

Key words: *Khuskhus* (*Khaskhas*), *Ayurveda*, *Ahiphena*, *Phytochemistry*.

INTRODUCTION

Now a days Herbal medicines are getting popular because of its efficacy and having less side effects. Although the use of medicinal herbs is not only therapeutic method in traditional medicine, it is the basis of medical treatments. A large number of herbal drugs are mentioned in Ayurved system of medicine, one of them is *Ahiphen* (*Papaver somniferum* Linn.).

Khuskhus (*Khaskhas*) or *poshtadana* or poppy seeds are the seeds of *Papaver somniferum* Linn. Which belong to family *Papaveraceae*. It is used as food

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product traditionally, before the use of latex as *Aphim*. The plant of Opium poppy or poppy seeds are commonly known as "*Ahiphen*".^[1]

"*Ahiphen*" word is the sanskrit translation of word "*Afyon*".

In *Ayurveda Brihatrayi* texts did not mention *Ahiphena*. *Sarangdhara* quoted it as the example for "*Vyavaya Dravya*". Text like *Bhavaprakas*, *Rasa Ratna Samucchaya* described *Ahiphena*.

Both *Narahari* and *Bhavamisra* explained the properties of *Ahiphen* and *Khaskhas* (seeds) separately. It finds a place among the seven poisons (*Saptopavisas*) according to them. *Raj Nighantu* included *Ahiphen* under the "*Upa Visa gana*".

K.C. Chuneekar reports that the opium poppy is used to prepare narcotic dishes. He is also of the opinion that opium is first prepared by the Greeks and later it is spread to Asia minor. Arabs might have brought it to China and India.

At present the cultivation of opium is closely monitored by Govt. of India and its alkaloids are extracted by Factories owned by Govt. of India.^[2]

Taxonomical Classification^[3]

Kingdom	: Plantae
Subkingdom	: Viridiplantae
Infra kingdom	: Streptophyta
Superdivision	: Embryophyta
Division	: Tracheophyta
Subdivision	: Spermatophyta
Class	: Magnoliopsida
Superorder	: Ranunculanae
Order	: Ranunculales
Family	: Papaveraceae
Genus	: Papaver L
Species	: Somniferum L

Vernacular names of *Khaskhas* or poppy seeds ^{[1],[4-6]}

Language	Name
Sanskrit	<i>Khaskhasa, Sukshmabeej, Subeej, Sukshmatandula, Tilabheda, Khastil, Shubhrapushpa, Lasatphala, Khakhasa, Tilbheda, Khasatil, Khasabeej.</i>
Hindi	<i>Posta, Khaskhasa, Sufeed Srab</i>
Marathi	<i>Posta, Khaskhas</i>
Bangali	<i>Terivriksha, Posta Dana</i>
Gujarati	<i>Aphonana dodava</i>
Farsi	<i>Kokbar</i>
English	<i>Poppy</i>
Latin	<i>Papaveraceae</i>

Botanical Description

An erect, rarely branched, glaucous, annual herb, 60-120 cm. in height.

Leaves - Many, amplexicaule, lobed, dentate or serrate, linear-oblong or ovate-oblong.

Flowers - Usually bluish white with a purple base or white, purple or variegated, 7.6-17.8 cm. long.

Capsules - Globose, stalked. 2.5cm.diameter.

Seed - Reniform, black or white.^[2]

Distribution - A native of west Asia, now grown in U.P. Hoshiarpur and Jalandhar in Punjab, Rajasthan and M.P.

Morphology of Seed^[8]

Macroscopic: The Seeds of *Papaver somniferum* Linn. are dried, white, grey or grayish black in colour, sub-reniform and about 1.25 mm long. The surface is covered with polygonal reticulations about nine in length and five in width of seed, the hilum and micropyle are situated in a depression near one end. The embryo is curved and embedded in endosperm. Sweetish or oily in taste and unpleasant odour.

Microscopic: Sectional view of seed coat showed the single layer of epidermis which contain somewhat elongated, thick walled parenchymal cells with thick cuticle on outer side. Below which the region is composed of polygonal to oval, thin walled parenchymatous cells. The epidermis of cotyledons is usually consisted of rectangular to oval slightly thick walled parenchymatous cells which possess yellowish brown content. Rest of the part is made up of thin walled hexagonal to polygonal parenchymatous cells, containing starch grains. The starch grains are oval to round in shape.

The sectional view of radical showed the epidermis composed of squarish parenchymous cells. Aleurone grains are present in cortical region which consisted of many layers of thin walled, polygonal to oval parenchymatous cells.

Action and uses in Ayurveda

Tikta Kashaya Rasam

Kapha Vat Haram, Balyam, Vrishyam.

Types: The *Ahiphen* is of three varieties according to its flowers.

White, Purple and Red

Purple and red: with black (dark) and white with white seeds.

Constituents of *Khuskhus*

Seeds contain a large percentage of bland fixed oil called Maw or Poppy Oil of pale golden colour drying easily and of an agreeable odour.

Seeds are alkaloid free.^[6]

Therapeutic Action

Poppy seeds are demulcent and nutritive, also mild astringent.

The poppy seeds yield a bland fixed oil which is used for culinary purposes. Medicinally it is used like olive oil in doses of ½ to 1 drachm. Seeds themselves are innocuous and used as an article of food.

As a mild astringent, they are given with sugar and cardamoms (burnt); they are useful in diarrhoea and dysentery.

Poppy seeds are used as syrup in cough and asthma; as they are destitute of any narcotic principle, they are sprinkled over some sweet meats and largely used in confectionary; they are also used in insomnia.

The seeds pounded with milk and pasted helps to destroy dandruff.^[7]

Modern Aspect⁹

Poppy seeds nutrition facts

Nutty and pleasant in taste, poppy seeds are nutritious oil seeds used as a condiment in cooking. Although the seeds obtained from the dry fruits (pods) of the poppy plant (opium poppy), they are entirely free from any harmful side effects of other poppy plant products such as opium poppy.

Poppy seeds are popular ingredients and generally employed as a condiment and to press oil. The seeds, indeed, are very safe to use as food and contain negligible quantities of toxic alkaloids of the opium poppy.

Health benefits of Poppy Seeds

- 1) Poppy seeds contain many plant derived chemical compounds that found to have antioxidant, disease preventing and health promoting properties.
- 2) The seeds are excellent source B-complex vitamins such as thiamin, pantothenic acid, pyridoxine, riboflavin, niacin and folic acid. Many of these vitamins functions as cofactors in the substrate metabolism, especially fat and carbohydrates inside the human body.
- 3) The Poppy seeds contains good levels of minerals like iron copper calcium potassium manganese, zinc and magnesium. Copper utilized in the production of red blood cells. Zinc is co factor in many enzymes that regulate growth and development, sperm generation digestion and nucleic acid synthesis.
- 4) Dry poppy seeds contains very small levels of opium alkaloids such as morphine, thebaine, codeine, papaverine etc. when consumed in the food these compounds produce a minimal effect on human nervous system on the contrary these chemicals found to have some beneficial effects on the human body. So the nervous irritability act as painkiller. Its seed extraction found useful in the pharmacy and many traditional medicines in the preparation of cough mixtures, expectorants etc.

Poppy Seeds (*Papaver somniferum*), Nutritional value per 100g.

(Source: USDA National Nutrient data base)

Principle	Nutrient Value	Percentage of RDA
Energy	525 Kcal	26%
Carbohydrates	28.13 g	22%
Protein	17.99 g	32%
Total Fat	41.56 g	139%
Cholesterol	0 mg	0 %

Dietary Fiber	19.5 g	51%
Vitamins		
Folates	82 ug	20%
Niacin	0.896 mg	5.5%
Pantothenic acid	0.324 mg	65%
Pyridoxine	0.247 mg	19%
Riboflavin	0.100 mg	8%
Thiamin	0.854 mg	71%
Vitamin A	0 IU	0%
Vitamin C	1 mg	2%
Vitamin E	1.77mg	12%
Vitamin K	0 mg	0%
Electrolytes		
Sodium	26 mg	2%
Potassium	719 mg	15%
Minerals		
Calcium	1438 mg	144%
Copper	01.627 mg	181%
Iron	9.76 mg	122%
Magnesium	347 mg	87%
Manganese	6.707 mg	292%
Phosphorus	870 mg	124%
Selenium	13.5 ug	24%
Zinc	7.9 mg	72%

CONCLUSION

According to Ayurveda literature *Khaskhas* possesses most important therapeutic values. This review

provide a knowledge about habitate and phytochemistry of *Khaskhas* that is seeds of *Papaver somniferum* Linn. with special reference to Ayurveda Medicine. Though *Khaskhas* has various medicinal applications, but it is need to explore the more medicinal values at molecular level with the help of biotechnological techniques.

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