



Pharmacological Potential of Ayurvedic Formulation: Kutajghan Vati- A Review

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ABSTRACT

Kutajghan Vati is a classical Ayurvedic anti-dysentery preparation which calms aggravated kapha and pitta specifically located in digestive system. It helps retrieve normal tone of intestine by reducing inflammation of small and large intestine promotes healing in colonic ulcers and restores proper digestion thus prevents nutritional deficiency and keeps body's strength intact. Kutajghana is said to be tridoshghna (Pacifies all the three Doshas) i.e. it is useful in management of diseases with their origin in either of the Dosha or all of them. This review explains the pharmacological potential of Kutajghan Vati and helps the research to explore more about this formulation.

Keywords: Kutajghan Vati, Ayurvedic formulation, Anti-dysentery, Colonic ulcers

INTRODUCTION

Vati and Gutika– These are in the herbal preparation in the form of tablets or pills made of one or more drugs of plant or mineral origin and these too comprise other several items. These Vati and Gutikas are used in the treatment of jaundice, hyperacidity, intestinal colic, distention of the abdomen, loose motions to chronic fevers¹ and also in the treatment of other body disorder and disease.

Vati and Gutika in other words are the medicines prepared in the form of tablets or pills and are made of one or more drugs of plant, animals or mineral origin. The drug of plant origin are dried and made into fine powder, separately. Then the minerals used are made into Bhasma or sindura. In other cases where parade and Gandhaka are mentioned, kajjali is made first and other drugs material used are added, one by one, according to the formula. These are put into into khalva and ground to a soft paste with prescribed fluids. When more than one liquid are mentioned for grinding, they are used in succession. When mass is properly ground and is in condition to be made into pills, sugandha Dravyas, like Kasturi, Karpura, which are included in the formula and are added and ground again. The criterion to determine the final stage of the formulation before making pills is that it should not stick to the fingers when rolled. Pills may be dried in shade. In case where sugar or jaggery is mentioned, paka of these should be made on mild fire and removed from the oven. The powders of the ingredient of Vati are added to the paka and briskly mixed. When still warm, vatakas should be rolled and dried in shade. Characteristics and preservation: pills made of plant drug when kept in air tight container can be used for two years. During the storage period these should be stored in air tight containers so that these not lose their colors, taste and so that no smell is produced^{2,3}.

Traditional Uses of Kutajghan Vati

1. Kutajghan Vati is a classical ayurvedic anti-dysentery preparation¹.
2. It calms aggravated kapha and pitta specifically located in digestive system¹.

3. Kurchicin is an active principle of Kutaj (*Holarrhena antidysenterica*) is highly effective against causative micro-organisms of diarrhea, dysentery i.e. especially amoebic type⁴.
 4. It helps retrieve normal tone of intestine by reducing inflammation of small and large intestine, promotes healing in colonic ulcers⁵.
 5. It also restores proper digestion thus prevents nutritional deficiency and keeps body's strength intact⁵.
 6. It is a drug of choice for IBS (Irritable bowel syndrome) and ulcerative colitis⁵.
 7. Kutajghan Vati stimulates the digestive fire, in management of bleeding haemorrhoids, alleviates itching, relieves diarrhoea, dysentery, ulcerative colitis and crohn's disease, effectively clears causative parasitic infection of intestine, reduces inflammation of intestinal wall and promotes healing of ulcers, restores digestion by normalizing digestive functions^{1,5}.
 8. Useful in all skin diseases^{1,5}.
- Dose:** - 2-4 pills (1-2gm) three times in a day⁵.

Ingredients of Kutajghan Vati^{5,6}:

Sr. No.	Common name	Botanical name	Part used
1.	Kurchi	<i>Holarrhena antidysenterica</i> L.(Wall)	Bark
2.	Aconite or Atish	<i>Aconitum napellus</i> L. <i>Aconitum heterophyllum</i> Wall.	Root Whole plant

The key ingredients of Kutajaghana Vati as per their Sanskrit or the Indian names are:

- Kutajah ke mul or root or one can also use the green bark. Wash it off with fresh water and cook it in around 16 times of water.
- When only 8 times of water is left behind let it cool down then using a cloth sieve this solution through it.
- Now go on to cook this mixture again and cook it again until it forms a thick solution or Kwatha.
- Now let it dry out in sunlight.
- Then add churna of atis to it in small amount and form vati's of 3-3 rati each.

Description of active ingredients used: -

1. *Holarrhena antidysenterica* L. (Wall): -A Main ingredient of Kutajghan Vati

Family: - Apocynaceae

Pharmacological Uses: - Seeds of *Holarrhena antidysenterica* L. (Wall) have astringent⁷ and styptic⁸ property. Seeds are also used in the treatment of Diarrhea and dysentery⁹⁻¹¹. The stem bark crude aqueous and alcoholic extracts of *Holarrhena antidysenterica* also exhibit anti-bacterial activity against the known enteric pathogens¹². Various fractions of H. *antidysenterica* showed promising activity against experimental amoebiasis in rats and hamsters¹³. The fruit extract (50% ethanolic) showed antiprotozoal effect against *Ent. Histolytica* strain STA, *Trypanosoma evansi*; anticancer effect against human epidrmoid carcinoma of the nasopharynx in tissue culture and hypoglycemic activity in rats¹⁴. In clinical study stem bark powder of *Holarrhena antidysenterica* also found active against Shonitarsha (bleeding piles)¹⁵. Antibacterial and amebeocidal activity of *Holarrhena antidysenterica* also proved by some other scientists¹⁶. Efficacy of aqueous extract of seed of *Holarrhena antidysenterica* for the management of diabetes is also carryout in experimental model in rat^{17,18}. *Holarrhena antidysenterica* also show *in-vitro* antioxidant potential according to FTC assay method¹⁹. Small doses of kurchicine produce a rise of blood pressure followed by a fall which is recoverable. Larger doses cause a

permanent fall in blood pressure due mainly to its toxic action on the cardiac muscle²⁰. Hot aqueous extracts of *Holarrhena antidysenterica* was tested for their inhibitory effect on phosphodiesterase²¹.

Chemical constituents: - Around 30 steroidal alkaloids have been isolated from this plant, mostly from the stem bark. These include kurchinine, kurchinine, kurchinidine, holarrifine, holadiene, regholarrhenines, pubescine, norholadiene, pubescimine, kurchilidine, kurchamide, kurcholessine, kurchessine, conessine, conessimine and isoconessimine²²⁻²⁵. The seeds were also reported to possess steroidal-type alkaloids²⁶. An enzyme, serine protease was also isolated from kurchi seeds²⁷.

Toxicity:

Use of connessine must, however, be closely supervised, as in some cases it can produce neurological troubles like Vertigo, sleeplessness, agitation, anxiety and delirium²⁸.

2. *Aconitum napellus* L.: -

Family: - Ranunculaceae

Pharmacological Uses: - *Aconitum napellus* L. has free radical scavenging activity²⁹. *A. napellus* contains several poisonous compounds, including enough cardiac poison that it was used on spears and arrows for hunting and battle in ancient times³⁰. *A. napellus* has a long history of use as a poison, with cases going back thousands of years³¹. During the ancient Roman period of European history the plant was often used to eliminate criminals and enemies, and by the end of the period it was banned and any one growing *A. napellus* could have been legally sentenced to death³². Aconite produced from the roots of a number of different species of *Aconitum* is used ethno medically in Traditional Chinese Medicine (TCM), to treat "coldness", general debility, and "Yang deficiency." Such use has been shown in some cases to negatively affect the cardiovascular and central nervous systems including documented instances of poisoning and death³³⁻³⁵. Chloroform, methanol and aqueous extracts of the *Aconitum napellus* L roots posses antidiabetic activity³⁶.

Chemical constituents :- It contain the Chemical alkaloids aconitine, mesaconitine, hypaconitine, jesaconitine and Chemical investigation of herb and flowers of *Aconitum napellus* L. ssp. *vulgare* led to the isolation of 12 diterpenoid alkaloids. Aconite contains the alkaloids aconine, napelline, picraconitine. The leaves and roots usually have the highest alkaloid content. Other components found in the plant include malonic acid, succinic acid, itaconic acid, aconitic acid, sugars, starches, fats, and resin³⁷.

Toxicity: - Aconite alkaloids can cause ventricular arrhythmia by a prolonged activation of sodium channels. Because the margin of safety is low between the analgesic and toxic dose, intoxication is not rare when Aconite is used in herbal medicine³⁸.

3. *Aconitum heterophyllum* Wall. : -

Family: - Ranunculaceae

Pharmacological Uses: - The powder is given half teaspoonful twice a day early in the morning and at night after meals up to three months for the treatment of diabetes, leucorrhoea and as carminative. The aqueous extract of the root 5-10 ml is given twice a day, early in morning empty stomach and at night after meals for 7 to 28 days in chronic fever, in diarrhea and as cold treatment efficacy³⁹. Paste of *Aconitum heterohyllum* dried tuber mixed with water and sugar taken orally and used to treat diarrhea, bodyache and also as an aphrodisiac and tonic⁴⁰. Dried roots of *Aconitum heterophyllum* powdered and taken orally to cure stomach ache and fever⁴¹.

Chemical Constituents: - The plant contains aconitic acid, aconitine, tannic acid, mixture of oleic, palmitic and stearic glycerides and ash. The roots contain 4.3% indacotinine, aconitic acid and starch³⁹. A detailed study of the basic components of the roots of *Aconitum heterophyllum* has led to the isolation of seven new diterpene alkaloids. The weak base fraction yielded besides heteratisine, three more alkaloids designated as *heterophyllisine*, *heterophylline*, and *heterophyllidine*. These compounds are lactone alkaloids which are

structurally related to heteratisine. The strong base fraction yielded besides atisine two new alkaloids, *atidine* and *F-dihydroatisine*, the latter previously encountered as a reduction product of atisine and isoatisine. The very strong base fraction yielded in addition to hetisine, alkaloids designated as *hetidine* and *hetisinone*. The latter had been encountered previously as a chemical transformation product of hetisine⁴². Atisenol, a new ent-atisene Diterpenoid Lactone from *Aconitum heterophyllum* is also discovered⁴³.

CONCLUSION

Kuatajghan Vati is used in diarrhoea, dysentery, ulcerative colitis, skin diseases, digestive problems, irritable bowel syndrome (IBS) and crohn's disease. There is minute scientific study about the pharmacological activities of the Kutajghan Vati. So this review helps the researcher to explore this formulation for more pharmacological activities.

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