

Elucidating the Uses of the Plant *Veronica Incana* from the Ancient Medical Books

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ABSTRACT

Background: Medicinal plant research has been successfully carried out in the field of pharmacy and pharmacology in Mongolia, and dozens of research projects are still being carried out. However, there are still fewer studied medicinal plants of practical importance growing in Mongolia. Therefore, there is a need to register and study the ancient medicinal books written by ancient Mongolian doctors about the relatively little-studied *Veronica Incana* plant. In addition, taking into account that scientific research on *Veronica Incana*, which grows in Mongolia, has not been done in the field of medicine. Therefore, the topic was selected for research in this field. **Purpose:** Comparing the information of the ancient medical books written by Mongolian doctors and scientists, who wrote about *Veronica Incana*, to clarify the taste, power, and quality. **Research materials and methods:** 1. Research materials: Sumbe khamba Ishbaljir. gso dpyad bdud rtsi 'i chu rgyun gyi cha lag gi nang tshan gyi sman so so'i mngon brjod dang ngos 'dzin shel dkar me long. *Wooden printing block* with *Tibetan* script. Toin Jambaldorj. gso byed bdud rtsi'i 'khrul med ngos 'dzin bzo rig me long du rnam par shar ba mdzes mtshar mig rgyan zhes bya ba bzugs so. *Wooden printing block* with *Tibetan* script. 2. Research methods: Methods of textual analysis for ancient books and checklist methods were used in the study. **Conclusion:** Gandhabhakra plant is used in traditional Mongolian medicinal practices from ancient times, the plant is called *Veronica Incana* in Latin. Also called Buural gandbadraa in Mongolian. On the other hand, the traditional medical doctors of China's Inner Mongolia and Tibet use Gandbadraa, the Latin name *Gnaphalium affine* D. Don. The appearance, shape, and color of the flowers of these two plants are different. According to the research of the source, the main instruction and usage of the plants are the same: to destroy benign tumors, to remove poison, to treat colds, and to stop cough.

Key words: Medicinal plants, *Veronica Incana*, Traditional Mongolian medicine, Ancient medicinal books.

BACKGROUND

Research on writing a review of traditional Mongolian medical books and ancient medical scriptures and determining the scientific nomenclature of plants, animals, and minerals-oriented medicine has been active since 1990. So far, more than 100 books and manuals have been written and published, combining the application methods, indications and tastes, potency, and strength used in traditional hospitals. In addition, our researchers have conducted phytochemical studies of dozens of plant species and have discovered and identified 60 previously unknown substances from *Iris tenuifolia*, *Ferula Feruloides*, and *Carduus crispus* L plants.

In the last 54 years, 18 of those plants have been identified in cooperation with foreign scientists, and the results have been published in prestigious international journals.

For example, Batsuren.D "Chemical study of pharmacologically active substances of some medicinal plants of Mongolia" (1992), Tsetsegmaa.S "Phytochemistry of some species of *Oxytropis*" (1992), Chojhamts. G "Pharmacology of *Peganum nigellastrum*" (1993), Tserendulam. L "Chemistry and chemical technology of some kind of *Bupleurum* plants" (1995), Dungerej.D "On the problem of obtaining new medicinal preparations

based on the phytochemical research of some species plants widely used in traditional medicine" (1996), G. Odontuya "A chemical study of alpha-pyrone compounds in the upper part of the *Aeroperia* of *Corniculata Spurgentian* growing in Mongolia" (1997) so on.

Since 2000, Enkhjargal.D "Pharmacognosy study of herbal and dry extracts" (2001), Bayasgalan. B "Evaluating the quality of some traditional Mongolian medicines and improving standardization" (2001), Purevsuren. S "Chemistry of two types of *Oxytropis*" (2002) can be named research works in many fields.¹ Although there have been many successful research projects in the field of pharmacology and pharmacy, there are still little-studied plants of practical importance growing in Mongolia.

Therefore, we have chosen the topic for research in this field, taking into account that there is little scientific research and ancient medical books on *Veronica Incana* written by traditional Mongolian doctors in the field of medicine since the 20th century.

Purpose of research work

Comparing the information of the ancient medical books written by Mongolian doctors and scientists, who wrote about *Veronica Incana*, to clarify the taste, potency, and quality.

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RESEARCH MATERIALS AND METHODS

Research materials

Sumbe khamba Ishbaljir. “gso dpyad bdud rtsi'i chu rgyun gyi cha lag gi nang tshan gyi sman so so'i mngon brjod dang ngos 'dzin shel dgar me long zhes bya ba bzhugs so” *Wooden printing block* with *Tibetan* script.

Toin Jambaldorj. gso byed bdud rtsi'i 'khrul med ngos 'dzin bzo rig me long du rnam par shar ba mdzes mtshar mig rgyan zhes bya ba bzhugs so. *Wooden printing block* with *Tibetan* script.

Research methods

Methods of textual analysis for ancient books and checklist methods were used in the study.

RESULTS

Since 1990, the policy of training traditional medicine doctors has been implemented in Mongolia, and since then, the works of academicians T. Khaidav, U. Ligaa, B. Khurelchuluun, Sh. Bold, and Luvsan of the Inner Mongolian Autonomous Region of the People's Republic of China, pharmaceuticals and pharmacology textbooks for traditional medicine classes at public and private universities were published and made available to the public. By summarizing the work of these researchers, the taste, strength, potency, and action of *Veronica incana* have been clarified in general.

Mongolian name: Буурал гандбадраа

Sanskrit name: गन्धभद्रा

Tibetan pronunciation of the Sanskrit name གནྱ་མཐོང་ (gandhabhadra)

Latin: *Veronica incana*

A perennial herb that grows 20-50 cm tall belonging to the Scrophulariaceae family. It has pale white stems and leaves as well as opposite leaves on an oval lanceolate stem. All parts of the plant have white felt hairs. It has a light blue sparse pappus-shaped calyx.

Distribution: It grows in forest-steppe and steppe zone, on the edge of the forest, and in the steppe meadow in Khuvsgul, Khentii, Khangai, Mongol Daguur, Middle Khalkh, Khyangan, Hovd, Eastern Mongolia and Gobi-Altay.

Medicinal raw materials: The upper part of the ground is used.

Content: The ground part contains flavonoids, alkaloids, caffeine, and chlorogenic acids including apigenin, luteolin, and *cinmarizine*, and contains coumarin, saponin, and iridoid. Saponins are found in underground organs, just as cardiac glycosides.

Taste and quality: Sour, earthy taste, cool, light, mild, sweet quality.

Potency: It has the potency to dry up swelling, relieve pain and nausea, and remove the shar us (yellow fluid). Recipe: Tsomts-25, jamba-16, Tsomts-8.²

Sumbe khamba Ishbaljir

“gso dpyad bdud rtsi 'i chu rgyun gyi cha lag gi nang tshan gyi sman so so'i mngon brjod dang ngos 'dzin shel dkar me long”. A *wooden printing block* with *Tibetan* script contains the following information about the *Veronica Incana*.

In Mongolian Gandbadraa; in Sanskrit gandha bhatra(गन्धभद्रा); called dri bzang (དྲི་བཟང་); which is the subject of spratog (སྤྲུག་ཐོག་).

Gandbadraa (गन्धभद्रा) is a medicinal herb with long stems similar to mountain ginseng. Similar to jahur (ཇུ་ཁུར་) it has yellow saffron-like flowers with narrow leaves. And there is something light-colored, sweet-smelling, with fluffy flowers.



Figure 1: *Veronica incana* grows in Mongolia



Figure 2: Differences in Gandhabhadra

On the left side, Gandhabhadra (*Veronica incana*), which grows in Mongolia.

On the right side, Gandhabhadra (*Gnaphalium affine D. Don*), which grows in the Inner Mongolian Autonomous Region and Tibetan Autonomous Region of China.

It is said that these two white and yellow species are useful for benign tumor breakouts, pale phlegm, gout, kidney disease, colds, and poison.³

Toin Jambaldorj

“gso byed bdud rtsi'i 'khrul med ngos 'dzin bzo rig me long du rnam par shar ba mdzes mtshar mig rgyan zhes bya ba bzhugs so”. *Wooden printing block* with *Tibetan* script contains the following information about the *Veronica Incana*.

In Mongolian Gandbadraa,

In Sanskrit gandha bhatra(गन्धभद्रा)

In Chinese: ling li'ng sh'ng

It has a Sanskrit name and is used as a sweet fragrance in ancient Tibet. Jahuradil is also the same but has narrow leaves and long stems, the seed head is similar to that of *Edelweiss*, pale yellow, and has flowers in four divisions, and the smell is very good. In "Crystal Ball" it is described that: "Gandbadraa is useful for benign tumor breakouts".⁴

We further examined the information of Buural Gandbadraa, based on the work of Toin Jambaldorj, and compared it with the information of Gandbadraa in the main works of traditional medicine researchers of Inner Mongolia and Tibet of China.

Differences in gandhabhadra

Pharmacological researchers of the Inner Mongolian Autonomous Region of China call Gandhabhadra in Sanskrit, as Khiburgene in

Mongolian. This is clearly noted in books such as "The Visual Dictionary of Seed Plants".⁵ The plant is a dried whole grass of a biennial herb, Khiburgene *Gnaphalium affine* D. Don, and an annual herb, Humid Khiburgene *Gnaphalium tranzschelli* Kirp. Khiburgene is found in Eastern, Southern, Northern, and Southwest countries, Taiwan, Korea, Japan, Vietnam, and India. Humid Khiburgene grows in Inner Mongolia, Northeast, North, and Far East of Russia, Mongolia, Japan, Korea, and South America. Its appearance is covered with pale bushy grass, with a pale orange root like a slender stalk. The stem is branched from the root and is 15-30 cm long and 0.1-0.2 cm in diameter. Root leaves grow in a row, the leaf surface is folded and crumpled. When it is soaked in water and unfolded, it is spoon-shaped or round flattened, girdle-flat, oblique-flat, 2-6 cm long, 0.3-1 cm wide, with a thick margin, and both sides are covered with erect pale cotton hairs. Golden yellow, yellowish-brown, or orange in color, abundant head-shaped inflorescences, and slightly fragrant. The whole grass of Khiburgene that bloomed in summer is taken, remove the dead leaves, clean the mixture, and dry it in the sun.

Khiburgene or gandhabhadra has a bitter taste. It has warm and harsh quality. It has the potency to eliminate echinococcus, remove poison and phlegm, and stop coughs. When used for treatment:

It is useful for internal cold echinococcus due to its anti-echinococcus action. Five hot herbs, three seeds, five kinds of salt, grain ash, and burnt ash of Khiburgene are used together with the composition of Garanz, or combined with the excrement of the vulture, three hot herbs, five kinds of salt, and *ajwain* (*Trachyspermum ammi*) seeds are used to make an assistance medicine in the composition of Narana.

Due to its anti-poison effect, it is useful for chronic poisoning. It is mixed with the horn of the saiga, cayenne fruit, and bear bile and applied to the areas swollen due to poisons.

As it has an antitussive action, it is useful for hacking coughs, shortness of breath, and distaste for food. It is combined with cardamom, cinnamon, raisins, yellow plums, and long pepper to make Cardamom pills.

Khiburgene is combined with six good medicines, mercury, three medicines of yellow fluid, and three lower seeds, and it is used in Mercury-25 for leprosy, paralysis, poison disease, gout, and rheumatism.

Khiburgene is combined with two species of sandalwood, three seeds, three hot herbs, white mustard, and blackberry, and is used as an assistant medicine in Khudebi's oil medicine for dementia.

Khiburgene is combined with long-beaked chebulic myrobalan, black false hellebore, yarrow seeds, and inula helenium to make Khiburgene poultice, or combined with saffron, inula helenium, pumpkin, spyi tang ka (medicinal fruit), and areca nut to make Khiburgene pill and used for pallor edema, canal edema, and hydro edema. Based on pharmacological studies, Khiburgene can lower blood pressure, dilate blood vessels, and slow heart rate.⁵

DISCUSSIONS

Pharmacological researchers of the Inner Mongolian Autonomous Region of China call Gandhabhadra as Khiburgene, which is similar to the use of the leaves and whole herb of *Gnaphalium affine* in Latin by doctors in Sanskrit, *gandha patra*, *gandha bhatra*. But in Mongolia, Gandhabhadra is considered as *Veronica incana* and used in medicine.

Sumbe Khamba Ishbaljir's "shel dkar me long." says, "It is useful for eliminating echinococcus, pale phlegm, gout, kidney disease, gout, cough, and poison disease",³ and in Toin Jambaldorji's "mdzes mtshar mig rgyan", "Gandhabhadra is useful for hard mass and phlegm". This potency and indications⁴ are basically the same as the "potency to eliminate echinococcus, remove poison and phlegm, and stop cough"

in the Mongolian Medicine book as mentioned in the Encyclopedia of Medicine of China.⁵ However, *Veronica incana* and *Gnaphalium affine* differ greatly in appearance and color.

The Encyclopedia of Medicine of China published in the Inner Mongolian Autonomous Region of China: Mongolian Medicine book mentions that "*Gnaphalium affine* is a biennial herb of the root of chrysanthemum and sometimes the dried whole herb of *Gnaphalium tranzschelli* Kirp" is used. In the book "khrungs dpe dri med shel gyi me long" published by the Tibetan Autonomous Region of China, Gandhabhadra is described as *Gnaphalium affine* D. Don,⁶ and the external characteristics of the plant are basically the same as the description of the researchers of the Inner Mongolian Autonomous Region of China. For example: "Its appearance is covered with pale bushy grass, with a pale orange root like a slender stalk. The stem is branched from the root and is 15-30 cm long and 0.1-0.2 cm in diameter. Root leaves grow in a row, the leaf surface is folded and crumpled. When it is soaked in water and unfolded, it is spoon-shaped or round flattened, girdle-flat, oblique-flat, 2-6 cm long, 0.3-1 cm wide, with a thick margin, and both sides are covered with erect pale cotton hairs. Golden yellow, yellowish-brown, or orange in color, abundant head-shaped inflorescences, and slightly fragrant".

However, Gandhabhadra (*Veronica incana*), which grows in Mongolia, is a 20-50 cm tall perennial herb belonging to the Scrophulariaceae family. All parts of the plant have felt white hairs. It has been described as having a light blue sparse pappus-shaped calyx.²

As a result of the research, we have further confirmed that in ancient times, Mongolian doctors used medicinal plants grown in India and Tibet instead of medicinal plants from abroad due to poor availability and quality. When used as a substitute, instead of the external shape, form, or color of the flowers, the medicinal properties contained in the plant were mainly shown, and they were used according to the criteria of taste, strength, potency, and quality. Gandhabhadra (*Gnaphalium affine* D. Don) is grown in the Inner Mongolian Autonomous Region and Tibetan Autonomous Region of China, although the shape, form, and color of the flowers are different, they have the same ability to eliminate hard mass, remove poison, relieve phlegm, and stop cough. In Mongolia, it is called Буурал ганьдбадраа in Mongolian, while it is called Gandhabhadra or Khiburgene in the Inner Mongolian Autonomous Region of China.

CONCLUSION

Gandhabhadra plant is used in traditional Mongolian medicinal practices from ancient times, the plant is called *Veronica Incana* in Latin. Also called Buural gandbadraa in Mongolian. On the other hand, the traditional medical doctors of China's Inner Mongolia and Tibet use Gandbadraa, the Latin name *Gnaphalium affine* D. Don. The appearance, shape, and color of the flowers of these two plants are different. According to the research of the source, the main instruction and usage of the plants are the same: to destroy benign tumors, to remove poison, to treat colds, and to stop cough.

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