



Artemisiae Argyi Folium and its geo-authentic crude drug *qi ai*

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Abstract *Objective:* To comprehensively review the literature relating to the use of Artemisiae Argyi Folium (AAF; the dried leaf of *Artemisia argyi* Lévl. et Vant. from the Asteraceae family), and *qi ai* (AAF grown in Qichun County and the adjacent areas in Hubei Province, China) in the field of traditional Chinese medicine. Furthermore, this study aimed to give results of the contents determination of three bioactive components in *qi ai* and AAF.

Methods: The literature was reviewed to acquire relevant information regarding the quality and application of AAF and *qi ai*. In addition, the contents of the bioactive components (essential oil, total flavonoids and tannins) were determined in 29 AAF samples collected from China and Korea using the methods in the Chinese pharmacopoeia (2015) or determined by our experiments.

Results: The dried leaf of *A. argyi* Lévl. et Vant. from the Asteraceae family is a mainstream commodity of AAF. *Qi ai* is a commercial type of AAF well-known for its good quality, which has been recorded in Chinese ancient literature. Modern research has showed that more intense heat with stronger penetration was generated in moxibustion therapy when *qi ai* moxa stick was burnt compared with general moxa stick, which led to a better curative effect. Our research also showed that the contents of essential oil, total flavonoids and tannin in *qi ai* were significantly higher than those of general AAF samples.

Conclusion: The superior quality of *qi ai* compared with general AAF may be due to relatively higher contents of bioactive components. This study provides basic information for further study and utilization of AAF and *qi ai*.

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Artemisiae Argyi Folium (AAF) is a traditional natural medicine that is extensively used worldwide. Its main-stream commodity is the dried leaf of *Artemisia argyi* Lévl. et Vant. from the family Asteraceae.¹ *A. argyi* Lévl. et Vant. is distributed in most areas of China, and in the Korean Peninsula and Russian Far East. As an extensively used traditional Chinese medicine, AAF was reported in the *Chinese Pharmacopoeia* (2015) for curing pain in the lower abdomen, abnormal menstruation, infertility, hematemesis, rhinorrhagia, metrorrhagia and metrostaxis, pregnancy bleeding, and external use in relieving pruritus.¹ AAF has also been used clinically in the treatment of fetal irritability, anemofrigid-damp arthralgia, diarrhea, chronic bronchitis, bronchial asthma, and chronic hepatitis. Furthermore, AAF is used as a raw material for moxibustion therapy for treating hundreds of diseases, with evident therapeutic effects.²

The internationally recognized geo-authentic crude drug of AAF is *qi ai*, which grows in *Qichun* County and adjacent areas (named 'Qizhou' in ancient China) in Hubei Province, China. *Qi ai* mainly originates from the cultivated plant of *A. argyi* Lévl. et Vant. *Qi ai* is the superior form of AAF for medicinal use, and is also a high-quality moxa material for moxibustion therapy.²

Historical records on the medical use of AAF and *qi ai*

AAF has a long history of medical application.² The use of AAF was recorded in *The Book of Songs*, the first anthology of poetry in China written around 2600 years ago. Furthermore, *Mencius*, a Confucian classic written during the Warring States period, recommends that a man who has been sick for 7 years should take AAF stored for 3 years; this indicates that AAF stored for 3 years was thought to be of better quality in ancient China.

In the first book on the theory of traditional Chinese medicine written in the Warring States Period 2000 years ago, *Huang Di Nei Jing*, AAF was one of a few drugs mentioned.² Two prescriptions with involving AAF were included in *Treatise on Febrile Diseases* and *Synopsis of Golden Chamber*,² which were written by the famous physician Zhongjing Zhang (150/154–215/219 AD) during the Eastern Han Dynasty. Both of these prescriptions are still commonly used in clinical practice of Chinese medicine for treating gynecological diseases and hematemesis. *Record of qi ai*, written by Wenyan Li (father of Shizhen Li) during the Ming Dynasty, reported that AAF collected around The Dragon Boat Festival showed the best efficacy in treating diseases or moxibustion therapy; 52 prescriptions with AAF for curing various illnesses were recorded in this book.²

Qi ai was first documented as a Ming Dynasty geo-authentic medicine by the prominent medical scientist Shizhen Li (1518–1593) during the Ming Dynasty. His reputed work, *Compendium of Materia Medica*, reported that AAF from *Qizhou* had the best quality or curative effect since the Chinghua Years (1465–1487 AD), and named it as *qi ai*. Since then, the geo-herb of AAF, *qi ai*, had become very well-known throughout China, and was dedicated to the imperial court as a tribute.

In China, AAF is also the raw material from which some clinical pharmaceutical preparations are made. For example, *aileyou* capsule and aerosol are made from the essential oil of AAF, and are used for treating bronchial asthma and chronic bronchitis.¹ A traditional Chinese medicine called the Compound Furong Effervescent Suppository is prepared from six materials including the leaf of *Hibiscus mutabilis* L. and AAF, and is used for vaginitis, cervical erosion and other common gynecological diseases.³ AAF is also the main crude drug used in manufacturing *Aifu Nuangong Wan*, a Chinese prescription medicine that reportedly regulates qi, benefits blood, warms the uterus, and regulates menstruation.¹

Use of AAF (*qi ai*) as moxibustion material

Moxibustion is a well-known and widely used traditional therapy that has been used for thousands of years. The best material for moxibustion is moxa, which originates from triturated AAF. The moxa is made into moxa stick, moxa cone or other moxa preparations that are burnt above certain acupoints in various ways to implement proper thermal stimulation to cure diseases or maintain good health.

Moxibustion has been approved by Chinese medical experts in various dynasties. To date, moxibustion has been used for treating more than 300 kinds of diseases in the fields of internal medicine, gynecology, orthopedics, surgery, pediatrics and ophthalmology, for conditions such as diarrhea, colitis, dysmenorrhea, knee osteoarthritis, asthma, urinary retention, and herpes zoster.² Moxibustion is currently extensively applied in China and abroad for its prominent curative effect.

Moxibustion originated in China and its use spread to other regions of the world at an early time. In 514 AD, moxibustion was first introduced to Korea, and then to Japan in 550 AD. Nowadays, moxibustion application has extended from treating illness to disease prevention and health promotion in Japan. Related research has also increased. Moxibustion was introduced into Western countries and became popular in the 18th century. Since then, moxibustion use has been generalized to a certain extent in Europe. In the past 30 years, moxibustion has been further developed and popularized in China.

Since ancient times, *qi ai* has been thought to be a superior quality raw moxibustion material compared with general AAF, and this has been verified by modern research. More heat with stronger penetration was generated when *qi ai* was burnt compared with general AAF,² which led to a better curative effect.

Healthcare function and other applications of AAF (*qi ai*)

AAF is not only widely used in medical treatment, but is also popular as a material in healthcare products, cosmetics, and food in China and globally. Early reports of dietotherapy methods and functions of AAF were recorded in the *Dietetical Chinese Materia Medica* in the Tang Dynasty.² AAF has been developed into a series of health products,

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