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How did three Angelica species come to be in different herbal categories?

The classification of Chinese medicinals: cultural and historical considerations for practitioners in the west

Similar properties of these three angelica species

Being closely related biologically in the same genus, it would be expected that these three species share aspects of their pharmacological make up and thus have similar properties. However today they are classified in different sections of the modern materia medica according to their function, this poster sets out to explore how this came about, and finds many similarities between the herbs after all.

Relationships between these herbs

In terms of the seven relationships, a system of principles for herb combining originally outlined in the Shen Nong Bencao around the first century AD,[4][5], Dang Gui (*A. sinensis*) is said to facilitate the actions of Bai Zhi (*A. dahurica*) and Du Huo (*A. pubescens*). This means that prescribing together will lead to a stronger effect[4].

Historical classification of Chinese herbs

Chinese herbal medical knowledge has been arranged in different ways through the ages, starting from the Shen Nong Bencao[6], the oldest surviving work dividing medicinals into three classes[8], and later by habitat-origin, shape, and usage[8].

Shen Nong Bencao Jing

There is a disparity between sources as to the classification of these herbs according to the Shen Nong Ben Cao. In the translation of the Shanghai edition[6] Dang Gui (*A. sinensis*) and Du Huo (*A. pubescens)* are in the superior class and Bai Zhi in the mediocre, however according to the Beijing foreign languages press Bencao Gangmu[7] and in Mark Wrights monographs[4] Du Huo (*A. pubescens)* is superior, Bai Zhi (*A. dahurica*) and Dang Gui Mediocre class.

That there is a discrepancy between versions is a problem in itself; on examination it is evident that editions of this text have been recompiled from a number of later sources, a number of different times, by different people based on literary conventions of commentary[6], and in the case of the UK, translated. With what certainty can the information coming down from this source be relied upon? How do we agree the authoritative version?

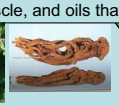
The core information about Qi and taste in this source is the same as given today but the indications are not. Dang Gui (*A. sinensis*) is recommended mainly for cough and fever as well as sores and infertility, Du Huo (*A. pubescens)* for treating wind cold and epilepsy and Bai Zhi (*A. dahurica*) 'mainly' for vaginal discharge or cold heat and wind invading the eyes, and 'promotes the growth of muscles and skin'[6]. The different emphasis in uses from modern books is marked.

Bencao Gangmu

As well as summarising the above work, Li Shizhen also draws from the writings of the primary masters of Chinese medicine on quality and uses of these herbs[7].
First published in 1599[7] the work anticipates the ideas of Linnaeus and Darwin[4] although not further developed in China at that time[8].

Dang Gui (*A. sinensis*): blood tonifying

Warm sweet and acrid, its sweetness tonifies and acridity moves the blood, it enters the Heart Liver and Spleen channels[1]. It is used to nourish and invigorate the blood, to regulate menstruation and to alleviate pain. It also moistens the bowel and treats dyspnoea[2].
Differing chemistry includes, aromatic acids and ketones, aqueous parts that stimulate uterine muscle, and oils that inhibit it.[4]

Similarities

Chinese medicine

All are described as warm in their Qi and also acrid, so share moving dispersing actions[1]. In terms of indications they are primarily recommended for symptom types according to their modern categories eg Bai Zhi (*A. dahurica*) opening the nasal orifice and Dang Gui (*A. sinensis*) regulating menstruation[1], but there are some overlaps in that Dang Gui (*A. sinensis*) is like Bai Zhi (*A. dahurica*) indicated for cough[2]. Both Du Huo and Bai Zhi (*A. dahurica*) are considered drying[1] and damp dispelling[2].

The channels the herbs enter was integrated into materia medica in the Song dynasty, principally by Zhang Yuan-su who attempted to integrate the theories of the Neijing and the Shanghan Lun with practical herbal use of the time[3]. The similarities in this area are fewer, overlaps being Dang Gui (*A. sinensis*) and Bai Zhi (*A. dahurica*) both having and affinity with the Spleen channel, and Dang Gui (*A. sinensis*) and Du Huo both enter the Liver channel[2].

Biomedicine

The chemical constituents they share are:
Aliphatic acids including angelic acid, and steroid triterpenes. Du Huo and Bai Zhi share coumarins and furanocoumarins[1] [2] [4]
They have been found to share the following biochemical properties:
Anti-inflammatory, anti-pyretic and antihypertensive effects. Du Huo and Bai Zhi both show antibiotic actions against a range of bacteria. [1] [2] [4]

Facilitates


Du Huo (*A. pubescens*): dispel wind damp

Warm, bitter and acrid, it enters the Liver, Kidney and Bladder channels[2], it treats bi Syndrome and dispels wind[1], its bitterness dries and it may injure the yin, it is also used in dermatology for itching[2].
Different biochemistry includes coumarin esters and analgesic, hypnotic and sedative effects[4]

Bai Zhi (*A. dahurica*): release exterior wind cold

Warm and acrid it releases exterior conditions, opens the orifices (especially the nose) dries dampness and enters the Lung Stomach and Spleen channels. It treats frontal headache caused by wind cold[1], it relieves pain, reduces swelling and eliminates pus, dispels damp to treat leucorrhoea[2].
Different chemistry includes a wider range of furanocoumarins and greater antibiotic actions, accelerating blood clotting and inhibiting uterine contractions[4].

Historical classification of plants in the west (Europe)

John Wray was the first in the west to start classifying plants and animals according to their structure and recognising the relation between environment and form. His work; history of plants, published 1688 under the name of his deceased patron Francis Willoughby, pioneered the idea of family relationships and also included medicinal uses[10].

Linnaeus or Carl Von Linne also studied medicine and became interested in Botany through herbal uses. He systematically ordered plants under a strict linguistic system of binomial classification that is the dominant form in use today[10]. Later Lemarck and Darwin developed ideas around acquired characteristics and natural selection which further informed and added credence to it.

Arbitrary classificatory systems

In terms of Chinese medicine the classification system closest to that which describes best the modern scientifically accepted 'reality' of species is that of Li Shizhen's Bencao Gangmu[7] since Li arranged entries into families and species using a binomial system, and recognised hereditary and family morphological characteristics[4][8]. However although much applauded in subsequent literature, his structural organisation largely fell from use[8] until the twentieth century when it became highly regarded as a good example of early Chinese science[11]. It can be seen that there are in fact many overlapping historical uses between these related species.

The category system used most widely today has grown up over the late twentieth century and different materia medica books in China today do have discrepancies as to which category a medicinal is placed in[1] as do the formula texts[12]. This way of classifying Chinese herbs is essentially arbitrary, although based on common opinion and experience, and definitely useful, the reason these three Angelica species are in different categories is that people have thought that it makes sense to organise them thus according to their common applications. The question again is what constitutes authority?

Impact on Chinese medicine practice in the UK

To certain practitioners the historical elements of herbal classification will not be new, however the system of classification used is the most prevalent way of learning and using Chinese medicine in the west. If students and practitioners of Chinese medicine only think in terms of the categories extant in textbooks it is likely to limit the degree of flexibility and therefore efficacy with which they are able to utilise the materia medica.

Studying the history and development of Chinese medicine is important to put the knowledge in context, to understand how it was formed, and to facilitate our understanding of the use of the materia medica. Ultimately knowledge must be discerned empirically, by what works in practice, not purely the information coming down through the ages.

Impact on identification & adulteration

In the UK and the modern world in general, the Linnaean binomial classification is the authoritative system of naming and identifying plant and other species[10]. Such specificity is important in dialogues of pharmacological testing (i.e. on the right plants), and authentication of imported herbs for trade (as in the work of Kew Gardens). Issues of substitution and adulteration with other plants also rest on the agreement of identification and classification.

Dang Gui (*A. sinensis*)	Stopping bleeding, removing stasis and nourishing blood, any blood disorder	Stops nausea, treats consumptive disease, stops dysentery with abdominal pain.	All diseases caused by pathogenic wind, blood disorders	Headache as well as epigastric and abdominal pain	Postpartum diseases, Metorrhagia and Metrostaxis	Treats carbuncles	Lumbago with vaginal bleeding Cold lumbago	Dispels pus and relieves pain	Coughing with dyspnoea	
Bai Zhi (*A. dahurica)*	Treats threatened abortion, removes blood stasis and tones new blood	Chronic thirst with vomiting and nausea. pain in the epigastrium and abdomen	Good for dispersing invasion of pathogenic wind	Yangming headache. Taiyang headache. Vertigo and headache.	Metrostaxis with whitish bloody discharge, amenorrhea with swelling	Treats numbness and itching of the head, face and body		Opens the nine orifices-Treats phlegm and dispels pus		Eye inflammation with polyp
Du Huo (*A. pubescens)*	Removes blood stasis	Disperses mass from the epigastrium	Invasion of pathogenic wind and cold.	Treats vertigo. Vertigo due to attack of pathogenic wind		Itching, paralysis of the face and body, numbness. Relieves carbuncle	Contracture of the tendons, painful joints. Arthralgia due to pathogenic wind		Relieves dyspnoea	Inflamed and painful eye

It is clear from the above that there are in fact many overlapping areas of usage between these three herbs even though in different categories; many of the overlapping areas involve expelling wind and cold which fits in with their shared warm and acrid natures.

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