

Does historical documentation support the proposed traditional use of *Chelidonium majus* L., by the European Medicine's Agency?

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Introduction

The common name for *Chelidonium majus* is greater celandine (see Fig. 1). Greater celandine belongs to the poppy family (*Papaveraceae*). It has been cultivated since medieval times.

Western herbal practitioners currently use greater celandine for gallstones, jaundice, spastic discomfort of the bile ducts and gastrointestinal tract, disorders of the liver and gallbladder, dyspepsia and topical treatment of warts [1]. The following parts are used: root, latex (juice from leaves, stems and roots) and aerial parts (collected at the time of flowering). Key constituents of greater celandine are alkaloids, flavonoids and phenolic acids. The major alkaloid is chelidonium which is antimicrobial and antispasmodic. Main actions are mildly antispasmodic, strong cholagogue, antimicrobial and bitter action [1].

Figure 1. Greater celandine.



The European Medicines Agency (EMA) issues herbal monographs which include information about the traditional use of herbs. The monograph on the use of greater celandine [2] may determine how this plant will be used in European countries in the future and we need to know if it accurately reflects traditional usage.

Aim and objectives

To explore and analyse a selection of historical herbals in order to assess the traditional medicinal uses of greater celandine. Results were then compared to what is today considered to be traditional usage as described by the EMA's monograph on greater celandine.

Methods

Content analysis was chosen to conduct the research. It is considered to be an adequate method for historical text analysis and involves comparison of content and interpretation of context [3]. Data was extracted from:

- The EMA monograph on greater celandine
- 12 historical herbals (see Fig. 2)

Twelve historical herbals were selected for analysis using the following inclusion criteria:

- Written in English or translated into English
- Correct identification of greater celandine (see section Botanical authenticity)
- Information about the medicinal usage included
- Regarded as a reliable source of information by contemporary herbalists [5]

Figure 2. Herbals selected for the research.

Author	Title	Year
Dioscorides	<i>Pedanius Dioscorides of Anazarbus: De materia medica</i>	70
Hildegard von Bingen	<i>Physica</i>	1145
William Turner	<i>A New Herbal</i>	1562
John Gerarde	<i>The Herbal or Generall Historie of Plantes</i>	1597
Nicholas Culpeper	<i>Culpeper's Complete Herbal</i>	1635
John Parkinson	<i>Theatrum Botanicum. The theater of plantes</i>	1640
John Quincy	<i>Pharmacopoeia officinalis & extemporanea</i>	1724
John Hill	<i>The useful family herbal</i>	1755
H.W. Felter and J.U. Lloyd	<i>King's American Dispensatory</i>	1898
Richard Cranfield Wren	<i>Potter's New Cyclopaedia of Botanical Drugs and Preparations</i>	1907
Maud Grieve	<i>A Modern Herbal</i>	1931
A.W. Priest and L.R. Priest	<i>Herbal Medication. A Clinical and Dispensary Handbook</i>	1982

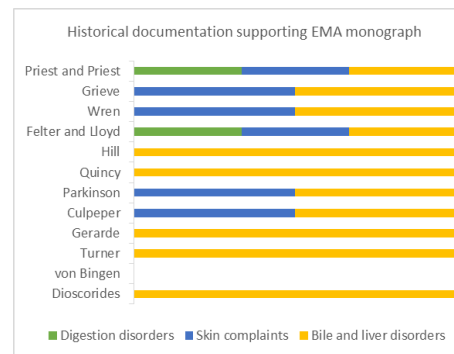
Results

The EMA monograph indicates the following traditional uses of greater celandine:

- Relief of digestive disorders such as dyspepsia and flatulence
- Warts and skin complaints such as corns, callus, tinea infections, eczema and tumours of the skin
- Bile and liver disorders, jaundice, gall and liver obstructions

The above traditional uses were confirmed in 11 of the historical documents. This contrasted with one historical herbal by von Bingen, which did not confirm any of the EMA medicinal uses (Fig. 3).

Figure 3. Herbals supporting traditional use of greater celandine as described by the EMA monograph



When compared to the EMA monograph it was found that the historical documents described 17 further traditional uses:

1. Sharpening the vision, clearing the eyes from films and cloudiness;
2. Shingles; 3. Toothache; 4. Ulcers, sores;
5. Sore eyes; 6. Oedema; 7. Pestilence and plague
8. Cancers and malignancies;
9. Excessive menstrual bleeding;
10. Obstructions and disorders of the viscera;
11. Scurvy; 12. Promoting perspiration;
13. Labour pain; 14. Bowel pain; 15. Inflammation;
16. Piles; 17. For hawks against sundry diseases.

Safety and side effects:

The EMA monograph does not report any side effects in the traditional use section, but they do report cases of liver and biliary adverse reactions in recent years [1]. Seven out of 12 herbals specified safety issues, mostly linked to skin irritation, although they generally reported greater celandine to be safe. Only von Bingen described greater celandine as a 'bitter poison'. Some historical herbal suggest actions that may prevent or alleviate skin reactions: if greater celandine causes inflammation or itching of the skin it was recommended to bathe this place in a little vinegar (Culpeper, Parkinson); the juice must be applied only to this part of skin which is treated as it may cause inflammation or vesication (Felter and Lloyd; Grieve).

Discussion and conclusion

- Traditional knowledge develops and evolves within a culture by observation and experience and is passed on orally from one generation to the next [4].
- The EU specifies that a herb must have been used medicinally for 30 years (15 within the E.U.) to be considered for inclusion in their official monograph list.

Botanical authenticity

It is important to distinguish greater celandine (*Chelidonium majus*) from lesser celandine (*Ranunculus ficaria*). The latter species similar sounding name and yellow flowers make for easy confusion, even though it belongs to a completely different family (*Ranunculaceae*). For example the intention was to engrave lesser celandine flowers on a memorial plaque for the poet William Wordsworth due to his fondness for these flowers, but by mistake greater celandine flowers were carved instead. Helpful for identification though is the characteristic yellow sap found with greater celandine, although there is a need to distinguish greater celandine from other plants which also exude yellow sap, for example *Aloe rubroviolacea* or *Macleaya cordata* (Fig. 4). However the morphology of these plants differ considerably from greater celandine.

Figure 4. *Aloe rubroviolacea* (left) and *Macleaya cordata* (right).



Conclusion

There are numerous and various traditional uses of greater celandine. The exploration of the selected 12 historical herbals supported traditional use proposed in the EMA monograph. However, this research revealed that historical documents recorded many more medicinal applications for greater celandine. This disparity may be linked to the limited resources accessed by the EMA:

- The oldest document used in the EMA monograph was from 1954
- The oldest documents used for this research was from year 70 AD (Fig. 2).

References

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