



# Lovage: A neglected culinary herb

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## ABSTRACT

Herbs and spices have undoubtedly fallen in and out of fashion over the centuries. The changing popularity of spices is perhaps easier to explain than that of herbs. After all, the former were often imported from the furthest corners of the globe, often at great expense, and hence were seen as a luxury item. Herbs, by contrast, were an ubiquitous feature of the (English) countryside, found in hedgerows, woods, and fields. Lovage (*Levisticum officinale* Koch.), which belongs to the *Apiaceae* (*Umbelliferae*) family, is a perennial plant that grows easily and has an umami-like taste and a celery-like flavour, thus leading to its name as the Maggi plant. Lovage also gives rise to a gentle mouth-tingling gustatory effect due to the presence of ligustilide, a volatile TRPA1 modulator. Charting the history of lovage's use in cooking, this narrative historical review will hopefully help to draw attention to a versatile and flavourful culinary herb that has largely been replaced in recipes by celery and/or parsley.

## 1. Introduction

A recent article in *The Fine Dining Lovers* sung the praises of lovage, a now mostly forgotten culinary herb (Editorial Staff, 2021). This tasty and highly aromatic perennial (*Levisticum officinale* Koch.) is a member of the *Apiaceae* (*Umbelliferae*) family (Pimenov & Leonov, 1993).<sup>1</sup> This is one of the largest plant families and comprises a wide variety of culinary and medicinal plants that are usually characterized by a pungent aroma due to the essential oils they contain. Lovage has been used for millennia to flavour soups, stocks, sauces, and stews. Lovage is a large (i.e., tall and stout) herbaceous plant (see Fig. 1) with a highly aromatic scent and edible leaves that taste like a cross between parsley and celery; it is related to both (Editorial Staff, 2021). It is native to Europe and parts of South-western Asia (Downie et al., 2001; Huxley, 1992; Tutin et al., 1968; see also Blamey and Grey-Wilson, 1989). It has been cultivated for centuries, if not millennia. In medieval Europe, it was used as both a foodstuff and a medicinal herb, and was a popular ingredient in love potions and aphrodisiacs (Stuart, 1989). Indeed, its name is derived from the Middle English 'loveache' or 'love ache', which means 'love parsley'; 'ache' was a medieval word for parsley.

Despite being by far the most frequently mentioned herb in Apicius (see Albala, 2021), lovage is virtually never mentioned in recipe books subsequently. It is an intriguing question as to why certain herbs/spices should fall in and out of favour (Albala, 2021), assuming that they have

simply not disappeared completely from the landscape like another of the favourites of Ancient Rome, namely sylphium (see Gorvett, 2017; Liberatore, 2022; see also Gemmill, 1966; Koerper and Kolls, 1999). In fact, lovage is still widely available and grows easily. It has become widely naturalized across Europe (Phillips and Rix, 1991), though for whatever reason, it has completely fallen out of culinary usage (Stuart, 1989). Although listed as one of the 100 or so herbs/spices in Peter's (2000) compendious *Handbook of herbs and spices*, lovage is not one of the 28 herbs/spices that are analysed in any detail in the volume. According to Venskutonis (2016, p. 539), in English it has also been called Garden Lovage, Old English Lovage, Italian Lovage, Cornish Lovage, the Maggi plant (cf. Blank and Scheberle, 1993), and Smellage (cf. Mabey et al., 1988).<sup>2</sup> Some commentators have suggested that lovage resembles garden angelica, and in foliage and perennial growth habit it closely resembles both Spanish *Angelica heterocarpa* (Grieve, 1984), and Chinese angelica (*Angelica sinensis*). There is also Scotch lovage (*Legusticum scoticum*), known as Scotch parsley or sea lovage, found in coastal areas of Scotland and Northern Ireland, as well as the western seaboard of Norway, Sweden and Denmark (Hogg et al., 2001).

Like so many other herbs and spices, lovage has been reported to possess medicinal properties, with its essential oil having documented anti-oxidative, anti-microbial, anti-bacterial, anti-fungal, and antiviral, properties as well as potentially anti-inflammatory activity (e.g., Cio- carlan et al., 2018; Georgieva, 2023; Jakubczyk et al., 2020; Mirjalili

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<sup>1</sup> Lovage is the sole species in the genus *Levisticum* in the family *Apiaceae*, subfamily *Apioideae*, and tribe *Apieae* (see Downie et al., 2001; Pimenov & Leonov, 1993).

<sup>2</sup> According to Fearnley-Whittingstall (2011), it is called 'céleri bâlard' by the French.



Fig. 1. Mature lovage plant.

et al., 2010; Mohamadi et al., 2017; Zlotek et al., 2019). Lovage was much used as a medicinal plant in the 14th Century (Venskutonis, 2016), and its roots have also been used medicinally (Segebrecht and Schilcher, 1989).

## 2. What does lovage taste like?

According to Venskutonis (2016), lovage has a warm and aromatic taste, while the stem and leaves give off a lime-like aroma when crushed. Raal et al. (2008) suggest that lovage has a strong flavour that is similar to celery (see also Hogg et al., 2001), while Ari LeVaux (2022) writes that lovage is: “Distantly related to celery, parsley and dill, it has the flavor of supercharged celery, and makes your mouth a little numb, like Sichuan pepper. This tingling action, like a low-level electric current, opens up intriguing possibilities for drink mixing.” (see also LeVaux, 2018). Ligustilide, a volatile TRPA1 modulator (Zhong et al., 2011), is responsible for the delicate mouth-tingling gustatory sensation that one sometimes experiences with both lovage and celery (e.g., Gijbels et al., 1982; Tang et al., 1990), as well as with some Chinese herbal medicinal plants such as Chinese angelica. Chemesthetic stimuli such as ligustilide may also impact the perception of the basic tastes, despite the unique sensation that it induces being neither a basic taste nor an aroma (see Rhyu et al., 2021; and see Kemzuraite et al., 2014, for enhanced extraction methods).

Lovage leaves contribute a savoury, almost umami-like note to food. According to the British Herb Garden website: “You think you’ve tried tomatoes every which way and then into your life comes a herb which transforms the ubiquitous tomato. Not basil, not oregano but lovage. Yes, lovage. The young leaves, finely chopped, bring a savoury, salty, almost umami quality to a tomato dish.” (<https://britishherbkitchen.co.uk/lovin-the-lovage/#:~:text=Yes%2C%20lovage.,quality%20to%20a%20tomato%20dish>). Alexander (2007) claims that lovage “has umami”, going on to say that it “is a perennial herb that has the flavour of celery, parsley and a hint of curry and spice. Use it carefully as it is very strong in umami.” According to one website: “Lovage is a very valued spice, with a characteristic flavor of quite dominant umami” (<https://naturalpoland.pl/en/artykuly/natural-products/lovage-extract-herbal-supplement-of-many-properties/>). Elsewhere online the following appears: “Lovage Essential Oil is known for its Umami taste, giving a natural alternative to Monosodium glutamate”. In fact, in 2021, the German food and beverage company, Knorr, launched a Zero Salt Bouillon cube prepared from spices, vegetables, and herbs such as turmeric, rosemary lovage, and nutmeg to impart an umami flavour to cooking (<https://www.gminsights.com/industry-analysis/lovage-extra-market>). Although not necessarily based on science, such suggestions might nevertheless still be taken to raise the question of how exactly umami should be defined.

## 3. Flavour chemistry of lovage leaf essential oil

According to gas chromatography-mass spectrometry (GC-MS) analysis of the essential oil of lovage leaf by Ciocarlan et al. (2018), thirty-two known and two unknown constituents have been identified (see also Moradalizadeh et al., 2012; Toulemonde and Noleau, 1988). The main components of *L. officinale* essential oil are monoterpenic hydrocarbons, which make up to 53.5% of the total number of components. *L. officinale* essential oil is also characterized by a high content of oxygenated monoterpenes (alcohols, cetones, and esters), which reaches up to 33.6%. Of these,  $\alpha$ -terpinyl acetate (31.0%), which smells mildly herbaceous, with a sweet and refreshing spicy bergamot-lavender odour, and  $\beta$ -phellandrene (22.5%), which delivers a peppery-minty and slightly citrusy note (Mirjalili et al., 2010).  $\beta$ -mircene (8.7%),  $\gamma$ -terpinene (6.8%), (Z)- $\beta$ -ocimene (3.5%), and sabinene (3.4%) were also present (see Table 1).

According to Raal et al. (2008), lovage leaf oil cultivated in Estonia contained high amounts  $\alpha$ -terpinyl acetate (55.8%) and  $\beta$ -phellandrene (11.3%). The content of (Z)-ligustilide (17.0%) in the leaf oil was smaller than in the root oil (see also El-Din and Hendawy, 2010). Other characteristic components that were present in amounts over 1% were: (E)-ligustilide (2.2%),  $\alpha$ -terpineol (2.4%), 2,3-dihydro-1,8-cineole (1.4%), myrcene (1.4%), and (E)-3-butyldiene phthalide (1.1%). Bylaite et al. (1998) identified a high percentage of  $\alpha$ -terpinyl acetate (49.7–70.0%),  $\beta$ -phellandrene (13.4–21.4%), and (Z)-ligustilide (4.4–11.7%), a phthalide, in the leaf oil of lovage from Lithuania at different growth phases. Meanwhile,  $\alpha$ -terpineol (0.9–1.5%), myrcene (1.6–4.4%) and limonene (1.9–4.7%) were all found in moderate amounts. According to research from Hogg et al. (2001), the most important aroma compounds of lovage are  $\alpha$ -terpinyl acetate (8.8–74.7% of total oil yield; see also El-Din and Hendawy, 2010) and  $\beta$ -phellandrene (8.3–69%), while Toulemonde et al. (1987) point to the importance of various phthalides in delivering the distinctive aroma of lovage. Blank and Scheberle (1993) identified various other odorants from lovage such as 3-hydroxy-4,5-dimethyl-2(5H)-furanone (sotolon), (E)-p-damascenone, 2-ethyl-4-hydroxy-5-methyl-3-(2H)-furanone, 4-hydroxy-2,5-dimethyl-3(2H)-furanone, 3-methylbutanoic acid, and acetic acid. Sotolon was the key aroma compound of the acidic fraction of lovage extract due to its characteristic seasoning-like flavour and high flavour dilution factor. According to Blank and Scheberle, sotolon is mainly responsible for the seasoning-like note of lovage extract. These researchers argue that the overall flavour is rounded off by additional sweet (caramel- and honey-like) aroma qualities.<sup>3</sup>

Of course, just as for many other herbs (and spices), the exact content of bioactive compounds in plants depends on a number of factors,

Table 1

A number of the key flavour compounds in lovage leaf, together with their flavour descriptors (e.g., Mohamadi et al., 2017).

Component	Description
$\alpha$ -terpinyl acetate	Mildly herbaceous, with a sweet and a refreshing spicy bergamot-lavender odour.
$\beta$ -phellandrene	Peppery-minty and slightly citrusy note.
Sotolon	An extremely powerful aroma compound, with the typical smell of fenugreek or curry at high concentrations; At lower concentrations, it smells of maple syrup, caramel, or burnt sugar.
Ligustilide	Gentle mouth-tingling sensation.
Myrcene	Earthy, fruity, and clove-like aroma; Becomes pungent in higher concentrations.
Limonene	Pleasant, lemon-like odour found in the rind of citrus fruits.

<sup>3</sup> Sotolon (also known as sotolone) is a lactone and an extremely powerful aroma compound, with the typical smell of fenugreek or curry at high concentrations and maple syrup, caramel, or burnt sugar at lower concentrations.

including genetic (family, species, cultivar, etc.), physiological (organ, maturity, and age), and environmental factors (fertilization, stress, or some treatments like elicitation; see Sprea et al., 2020). The influence of harvesting time has been studied by Bylaitė et al. (1998), the influence of different stages of development by Bylaitė et al. (2000; see also Seidler-Lozykowska and Kazmierczak, 1998),<sup>4</sup> and the impact of cutting frequency was studied by Rohricht (2009).

#### 4. Culinary uses of lovage

Lovage has long been cultivated in Europe, the leaves being used as an herb, the roots as a vegetable, and the seeds as a spice (Blamey and Grey-Wilson, 1989). Fresh and dried lovage leaves and dried rhizomes or roots are suitable for flavouring meat soups, stocks, meat, fish, vegetable dishes, and sauces. The leaves can be used in salads; The roots can be eaten as a root vegetable, while the seeds have a flavour that has been described as similar to fennel. According to *The Fine Dining Lovers*, “These days it remains popular in various parts of Europe, and is a key ingredient in many local dishes. In the Netherlands, it is served with white asparagus and salt, and in Romania it is used to add flavour to pickled cabbage and cucumbers, while in the UK it was traditionally made into an alcoholic drink called lovage cordial. Thanks to its intense celery flavour, it works well as an aromatic, and can be used to add flavour to soups, stocks, sauces and stews, or simply added to salads for some extra flavour.” (Editorial Staff, 2021). According to Georgieva (2023), lovage leaves are used as a seasoning, especially in seafood recipes from the Mediterranean region (see also David, 1955), and in meat dishes from Middle Eastern cuisine.

A little over a decade ago, the famous British chef, Hugh Fearnley-Whittingstall (2011) said of lovage that: “When you’ve tasted this intriguing herb in the likes of this soup with lettuce, pea and cucumber, it’s hard to work out why it isn’t more popular ... The flavour is like parsley and celery combined with a hint of aniseed and curry. And if you think that sounds intriguing, you’d be right. So why aren’t we all using it by the handful, and why is it virtually impossible to buy? And why doesn’t it have a place in every veg plot? Mysterious questions to which there is no answer, except perhaps a shrug and, “Luck of the draw, I guess.”. The chef suggests using the leaves as a punchy substitute for parsley or celery (Fearnley-Whittingstall, 2011), though he advises his readers to go easy at first because it’s stronger than both.

Contemporary commentators do not have much to say about lovage when considering the art and science of food/flavour pairing (Chartier, 2012; Coucquyt et al., 2020; Segnit, 2010). Segnit merely points out that both lovage and walnuts contain phthalides. Chartier agrees with Fearnley-Whittingstall (2011) that lovage has something of an anise-like taste/flavour that reminds Chartier of caraway. He suggests that lovage is rich in thymol and carvacrol (compounds that are also found in sage, rosemary, basil and mint).<sup>5</sup> In terms of food pairing, Coucquyt and his colleagues suggest that lovage leaves have notes of citrus, floral, herbal, vegetal, caramel, nutty woody, spicy, and that they pair well with oven-cooked bacon.

<sup>4</sup> According to Novák and Németh (2002), leaf samples were taken in ten day intervals from the middle of July through to the beginning of November and root samples from the beginning of September until the end of October both in one-year-old and two-year old populations. The two-year-old leaves and roots contained A higher essential oil content than the one-year-old samples. During vegetative stages, the highest volatile oil contents in the leaves were found in the middle of August, while in the roots in the second half of October. Interestingly, however, the sensory characteristics of the examined samples however, showed no connection with their harvesting time and plant age.

<sup>5</sup> However, according to Peter (2000), carvacrol and thymol are actually the key flavour compounds in oregano.

#### 5. Why do certain herbs and spices fall out of fashion?

While the terms ‘herbs’ and ‘spices’ are often conflated in the literature (see Spence, 2021), the factors leading to their respective rise and fall in popularity at different points in history is likely to be quite different (see Albala, 2021, on this point). Put simply, spices were very often a luxury item in the west (e.g., in Britain; Freedman, 2008, 2012, 2015), whereas many herbs would have been a ubiquitous feature of hedgerows, woodlands, and fields, and available to all who lived in the countryside (e.g., see La Cerva, 2021; Schivelbusch, 1993). Albala compares how often various herbs are mentioned in three Italian books of recipes, namely Apicius from the fourth-century, *De honesta voluptate* published c. 1470 by Martino/Platina (see Platina, 1998), and Pellegrino Artusi’s, *Science in the Kitchen and the Art of Eating Well*, first published in 1891 (Pellegrino, 2003). Albala notes that while lovage appears in 163 of the 455 recipes in Apicius (1936; though see Lindsay, 1997), making it by far most popular herb mentioned (i.e., it appears in 36% of the recipes), it does not make a single appearance in either of the subsequent cookbooks. By 1470 (i.e., in Platina, 1998), parsley has become the most frequently used herb, appearing in 25% of the recipes, and in 19.3% of the recipes appearing in Artusi’s volume.

But why exactly has lovage disappeared from recipes? Albala (2021) briefly raises the possibility that climate change might have been responsible for the changing availability of certain herbs, before rapidly discarding the suggestion. He also notes how certain herbs fell out of favour over the centuries because of their putative negative effects on health. Here it is relevant to note that pregnant women were once advised to avoid lovage, given reports of it causing the uterus to contract and/or bring on menstruation, thus potentially increasing the risk of miscarriage (Editorial Staff, 2021).<sup>6</sup> Albala also considers whether the arrival of various ingredients from the New World, such as, for example, tomato may have led to the decline of herbs such as lovage. Perhaps, he ponders, lovage simply doesn’t work well with tomatoes, whereas basil did.<sup>7</sup>

Albala (2021) experiments with dropping the lovage out of an Apicius recipe for oenogarum (a wine and fish sauce) and replacing it with oregano (not much used in Roman cuisine), which he suggests works reasonably well. Elsewhere, he drops the basil and parsley from a tomato-sauce (*Salsa di Pomodora*), replacing them with cilantro and dill, or mint – combinations that really do not work, the latter reminding the author of toothpaste. Of course, problems with such an approach include the fact that wild herbs available in centuries gone by, subject to harsher environments with less water and nutrients, are likely to have a much stronger flavour than many of the cultivated plants available today (see Turner, 1551/2003). As such, one may not be comparing like with like. Furthermore, as plants were domesticated, they were often selected to be less pungent (La Cerva, 2021). All this to say that more rigorous scientific research is needed.

At the same time, however, lovage had already disappeared from Martino’s/Platina’s c. 1470 cookbook which was first printed several decades before tomatoes would have made their way to Italy from the New World as part of the Columbian Exchange. Another problem with Albala’s (2021) approach is highlighted when the combination of tomato with cilantro (the latter herb popular in Roman times), reminds the author of Mexican cuisine and prompts the suggestion of chile would

<sup>6</sup> Along just such lines, one Polish website advises that “Lovage should not be used by pregnant women due to its strong relaxing properties, as it may lead to uterine contractions and eventually a miscarriage. This action is attributable to the substance called ligustilide.” (<https://naturalpoland.pl/en/artykuly/natural-products/lovage-extract-herbal-supplement-of-many-properties/>).

<sup>7</sup> Such a suggestion contradicted by the earlier quote that lovage works especially well with tomato (see <u>[<u>https://britishherbkitchen.co.uk/lovin-the-lovage/#:~:text=Yes%2C%20lovage.,quality%20to%20a%20tomato%20dish](https://britishherbkitchen.co.uk/lovin-the-lovage/#:~:text=Yes%2C%20lovage.,quality%20to%20a%20tomato%20dish)</u>



make for a nice combination. Such thoughts would presumably not have occurred to those using these earlier cookbooks.

At the same time, however, books of recipes can only provide a very selective account of what people at any given stage in history might actually have been eating. The transformation of wild herbs from common sustenance to aristocratic luxury was apparently a dramatic, if little commented upon, change in eating behaviour in the early modern period in England, at least according to [La Cerva \(2021\)](#). In the early modern period, much of the peasant diet would likely have been made up of wild herbs/vegetables for the daily pottage, though as [La Cerva \(2021\)](#) notes, such a pattern of consumption is unlikely to have left much in terms of a historical trace. This changed in the Enlightenment period (i.e., by early sixteenth century), perhaps as a result of changing farming practices. Much later, of course, the shift of so many in the population from a rural to a city existence must have further made it hard for those living in the British Isles to access fresh herbs.

Unlike bay leaves (see [Spence, in press](#)), commentators would all seem to agree that freshly-picked lovage leaves taste best in the foods to which they were added ([Editorial Staff, 2021](#)).<sup>8</sup> Nowadays, they can be kept for 2–3 days in a bag in the crisper section of the fridge or else the leaves can be dried, though the end result is not as good. In the contemporary era, one might wonder whether the difficulty of keeping/transporting the fresh herb might lead to the shops/supermarkets directing consumers towards other longer-lasting fresh herbs, such as, for example, basil (see [Parker, 2004](#)). The difficulty of preserving lovage once picked means that it is unlikely to make it a popular herb commercially (where a long shelf-life is always advantageous). That said, the decline in this culinary herb's popularity would appear to have taken place much further back in time.

## 6. Was lovage simply replaced by parsley and/or celery?

Given that lovage is often described as tasting like a cross between celery and parsley ([Alexander, 2007](#); [Editorial Staff, 2021](#)),<sup>9</sup> only more pungent ([Fearnley-Whittingstall, 2011](#)), one might wonder whether it was simply replaced in recipes by either or both of these other herbs. Certainly, a quick scan of a number of digitized books of recipes/cookbooks over the centuries is at the very least consistent with such a transition (see [Table 2](#)). There is, for example, no mention of lovage in

**Table 2**

Frequency with which lovage, celery, and parsley leaf appear in Apicius and in a selection of popular English cookbooks that have been digitized as part of Project Gutenberg.

	Lovage	Celery	Parsley
Apicius	35	8	8
Evelyn (1699)	0	12 (Sellery)	2
Kitchiner (1817)	0	92	135
Soyer (1849)	0	51	168
Beeton (1861)	0	169	307
Francatelli (1861)	0	24	25
Hazlitt (1902)	0	0	4

<sup>8</sup> Note that bay leaf is also a little unusual in that a third of the population are apparently anosmic to the dominant volatile of the essential oil, 1,8-cineole ([Pelosi and Pisanelli, 1981](#)).

<sup>9</sup> Here one might also consider the perceived similarity of parsley and celery ([Jones et al., 1978](#)). Many other culinary and medicinal plants such as *Anethum graveolens* (dill), *Petroselinum crispum* (parsley), *Apium graveolens* (celery), *Coriandrum sativum* (coriander), *Carum carvi* (caraway), *Cuminum cyminum* (cumin), *Foeniculum vulgare* (fennel), *Pimpinella anisum* (anise), *Daucus carota* (carrot) and *Pastinaca sativa* (parsnip) also belong to the same family ([Cătușescu et al., 2023](#); [Georgieva, 2023](#)).

the cookbooks of [Kitchiner \(1817\)](#), [Soyer \(1849\)](#), [Beeton \(1861\)](#), [Francatelli \(1861\)](#), and [Hazlitt \(1902\)](#).

### 6.1. Parsley

Parsley (*Petroselinum crispum*, a member of the *Apiaceae* family)<sup>10</sup> is a biennial herb belonging to the carrot family. It has been cultivated for more than 2000 years though was first used medicinally (Hippocrates introduced it as a diuretic) rather than as a culinary herb ([Sarwar et al., 2016](#)). As well as having a similar aromatic profile to lovage ([Cătușescu et al., 2023](#)), parsley also provides a rich source of vitamins A and C ([Valšířková et al., 2016](#)), which may have been hard to come by in the medieval diet during the winter months. According to [Peter \(2000\)](#), the key aromatic compound in parsley is apiol (which is described as having a herby aroma). In terms of its essential oils, parsley contains apiol, myristicin (also found in nutmeg, and smells spice-like),  $\alpha$ -pinene,  $\beta$ -pinene and elemicin ([Sarwar et al., 2016](#); see also [Farouk et al., 2017](#)). Others, meanwhile, have detected the presence of myristicin, apiol, 1-allyl-2,3,4,5-tetramethoxybenzene,  $\beta$ -phellandrene, 1,3,8-p-menthatrione (with an odour described as smelling of turpentine, camphor, herbal, woody),  $\beta$ -pinene, terpinolene, apiin, oxypeucedanin and falcarinol ([Punoševac et al., 2021](#)). [Masanetz and Grosch \(1998\)](#) identified 17 compounds contributing to the unique aroma of parsley, with p-1,3,8-menthatrione, myrcene, 2-sec-butyl-3-methoxypyrazine, myristicin, linalool, 6-decenal, and 3-hexenal being the most important flavour compounds. However, just as for a number of other herbs, the exact proportion of each of the various chemical constituents was found to vary depending on the type of species or cultivars as well as cultivation conditions including soil type, weather, irrigation, pruning and other horticultural practices ([Petropoulos et al., 2008](#); see also [MacLeod et al., 1985](#)). Chopping parsley leaves led to a rapid change in aroma from a terpeny, parsley-like note and an increase in green, grassy and fruity notes ([Masanetz and Grosch, 1998](#)).

### 6.2. Celery

Celery is a biennial plant that is native to the Mediterranean region and grows in moist locations, especially near the sea ([Pelt 1993](#)). Celery was one of the main vegetables, herbs and spices recorded archaeobotanically in Greek archaeological contexts dating from 900 B.C. to 400 BCE ([Megaloudi, 2009](#)).<sup>11</sup> Megaloudi notes that archaeobotanically, *Apium graveolens* has been found in a layer dating from the 9th century B.C. at Kastanas as well as at the 7th century B.C. site of Heraion on Samos ([Kučan 1995](#)), where many wild celery seeds (*Apium nodiflorum* L.) were also found. According to Megaloudi, several different varieties of cultivated and wild celery were known in classical antiquity ([Amigues, 1992](#)). Theophrastus reports three varieties of wild celery, horse celery (*ipposelinon*), marsh celery (*eleioselinon*), and mountain celery (*oreoselinon*), which “differ both from one another and from the cultivated kind”.

Celery's late arrival in the English kitchen was the consequence of

<sup>10</sup> The generic name *Petroselinum* comes from the Greek words, “petra” which means stone or rock and “selinin” means celery.

<sup>11</sup> Celery leaves were also used in wreaths and in garlands [Zohary and Hopf \(2000, p. 202\)](#), as, for example, by visitors to the sanctuary at Heraion the sanctuary of Hera on the island of Samos ([Kučan 1995](#)). According to [Megaloudi \(2005, p. 78\)](#): “In classical Greece, celery leaves were used as garlands for the dead. The wreaths of the winners at the Isthmian Games were first made of celery before being replaced by crowns made of pine. According to Pliny (*Natural History* XIXLVI), in Achaia, the garland worn by the winners of the sacred contest at Nemea was also made of celery.”

the long tradition of seed selection needed to reduce the sap's bitterness and increase the vegetable's/herb's sugars.<sup>12</sup> By 1699, John Evelyn was recommending it in his *Acetaria. A Discourse of Sallets*: "Sellery, apium Italicum, (and of the Petroseline Family) was formerly a stranger with us (nor very long since in Italy) is a hot and more generous sort of Macedonian Persley or Smallage ... and for its high and grateful Taste is ever plac'd in the middle of the Grand Sallet, at our Great Men's tables, and Praetors feasts, as the Grace of the whole Board." Meanwhile, the original 1747 edition of Hannah Glasse's *The Art of Cookery* (Glasse, 1747), one of the most popular cookbooks in 18th-century England, included a recipe for celery sauce (Moss, 2022).

Celery was, however, first cultivated in Britain in the 1800s in the wetlands of East Anglia. Its production was extremely labour intensive, as trenches had to be built in which to grow it. It also had to be dug up regularly to preserve the whiteness of its stalk. Consequently, celery turned into a rare and expensive vegetable in Victorian Britain, costing somewhere in the region of 33 shillings (roughly £180). The price must, however, presumably have been much lower in the era of Beeton (1861), given how frequently she uses celery in her recipes (see Table 2). At the time, the upper classes were hesitant to consume celery, given its cost. Tall, tulip-shaped glass celery vases placed atop a pedestal came into fashion during this period. The celery was cleaned and scraped, before being placed into the celery vase with its leafy top still intact (Moss, 2022).

In the Victorian era, there was a craze in both Britain and North America for celery (as there had been for pineapples in the 18th century, see Spence, 2023), both of which would have been displayed on the dinner tables of the wealthy. In the case of celery, it would appear to have been more about the vegetable's architectural qualities as table decoration (and the eye appeal of its pure white stalks) than necessarily for its flavour that it was such a sought after vegetable (O'Hagan, 2020; Thirsk, 2007). Celery appears briefly in colonial American gardens; its culinary limitations are reflected in the observation by the author of *A Treatise on Gardening, by a Citizen of Virginia* that it is "one of the species of parsley" (quoted in Leighton, 1976, p. 199). The first extended treatment in print appears in M'Mahon (1806).

After the mid-19th century, continued selections for refined crisp texture and taste brought celery to American tables, where it would have been served in celery vases (see Fig. 2) to be salted and eaten raw. In fact, celery was so popular in the United States during the 19th century and early 20th century that the New York Public Library's historical menu archive shows that it was the third most popular dish in New York City menus during that time, behind only coffee and tea. Celery appeared on the menu at one out of every four restaurants though, of course, here it is being used as a vegetable rather than as an herb. In those days, celery cost more than caviar, as it was difficult to cultivate (Saini, 2019). There were also many varieties of celery back then that are no longer around because they are difficult to grow and do not ship well (see de Vilmorin, 1950; Malhotra, 2006).

Cultivated celery (*Apium graveolens* L. var. *dulce*) is also a member of the *Umbelliferae* (MacLeod and Ames, 1989), and is described as having an aroma that is strongly celery-like. Given that a number of the components of the essential oil overlap with those of celery, such terpenes ( $\gamma$ -terpinene) and phthalides, the key volatile components, as well as limonene and  $\beta$ -pinene (Gold and Wilson, 1963; Szebeni-Galambsi et al., 1992; Van Wassenhove et al., 1990; Wilson, 1970). Analysis of volatile components using GC revealed monoterpene hydrocarbons (46.0%) and phthalides (42.3%). Major components were limonene sedanenolide,  $\gamma$ -terpinene and  $\alpha$ -pinene. A celery-like odour was also



Fig. 2. Celery Vase, c.1888. Metropolitan Museum of Art [Creative Commons CC0 1.0 Universal Public Domain Dedication; [https://en.wikipedia.org/wiki/Celery\\_vase#/media/File:Celery\\_vase\\_MET\\_DP208117.jpg](https://en.wikipedia.org/wiki/Celery_vase#/media/File:Celery_vase_MET_DP208117.jpg)]. By the late 1880s, the price of celery began to decrease as easier-to-grow varieties developed. As a result, celery started to be eaten rather than merely looked at. This led to celery vases being replaced by celery dishes, which were sold as part of a set accompanied by four salt dishes.

associated with the 16 phthalides detected by MacLeod and Ames.

Celery was first grown as a winter and early spring vegetable, and it was considered a cleansing tonic to counter the deficiencies of a winter diet based on salted meats without any fresh vegetables. By the 19th century, the season for celery in England had been extended to last from the beginning of September to late in April. That said, Grigson (1971) notes that celery is a seasonal vegetable that is at its best in Britain from November and December. As for many other herbs, this seasonal aspect has largely been lost. As one commentator notes, I expect few of us have eaten prime celery improved by the 'first frost'. In fact, one of the other reasons for parsley and/or celery gaining ascendancy over lovage is that the latter is a herbaceous perennial (i.e., it loses all above ground growth through the winter). By contrast, stands of celery and parsley will survive all but the hardest frosts. According to Cătușescu et al. (2023), it may have retained more of its popularity in cuisine in parts of Eastern Europe (e.g., such as Bulgaria and Romania).

This contrasting with celery's unenviable contemporary position as the UK's most-hated vegetable, with one in four admitting to detesting its taste (McCafferty, 2010).<sup>13</sup> There has, though, been a resurgence in

<sup>12</sup> It should be noted, however, that the varieties of certain herbs that we have access today are often not the same as would have been used to season dishes in centuries gone by. The celery that we are familiar with nowadays was selectively bred in 14th Century Italy from the wild plant that is "rank, coarse, and ... poisonous" according to the celery expert Theophilus Roessle.

<sup>13</sup> One also finds those who suggest that celery has no flavour: "Why did humans start cultivating celery? It's low-calorie and, one might argue, low flavour ... Celery, the mild-mannered straight man of the vegetable world, packs a puny six calories per stalk and — in my opinion — about as much flavor as a desk lamp." (Jacewicz, 2016).

popularity in The States (Meltzer, 2019; Uguen-Csege, 2019), and Australia (Zhou, 2019), over the last few years attributable to celery juice's perceived healthfulness.

## 7. Conclusions

The culinary herb lovage essentially disappeared from books of recipes long ago, despite its frequent incorporation of the early recipes found in *Apicius* (1936; see also Albala, 2021). In recent years, *Levisticum officinale* has been classed as an endangered medicinal plant by Iranian researchers (Khodashenas et al., 2015), and as an underutilized herb by Indian researchers (Ravindran, Pillai and Babu, 2004). At the same time, other researchers have argued that it may have retained its popularity in parts of Eastern Europe (Cătușescu et al., 2023). In terms of the flavour it can impart to a dish during cooking, lovage's role may have been replaced by celery and/or parsley (both of which are members of the same family), which have a somewhat similar flavour profile (e.g., Editorial Staff, 2021). Indeed, lovage is often described as having a celery-like flavour (Editorial Staff, 2021; Hogg et al., 2001), and flavour chemists have identified several classes of compound shared by these three members of the *Apiaceae* family.

By charting lovage's use in cooking over the centuries, the hope is that this narrative historical review will help to draw attention to this versatile and flavourful culinary herb that has largely been replaced in recipes by celery and/or parsley. Indeed, given this culinary herb's versatility and powerful aromatic flavour profile, it should perhaps not come as any surprise to realise that a growing number of chefs (Fearnley-Whittingstall, 2011), commentators (Editorial Staff, 2021), and cocktail makers (LeVaux, 2018) are all suggesting that lovage should be brought back into the culinary repertoire of herbs. Furthermore, given the push towards reducing our intake of salt (see Spence, 2022), there may also be scope to harness the savoury quality of lovage leaf as an umami-like salt replacer.

## Implications for gastronomy

Lovage is the most frequently-used herb in *Apicius*, the Ancient Roman gourmand's book of recipes. However, this aromatic perennial plant subsequently fell out of favour in Western European cuisine. While various hypotheses have been put forward to explain the changing historical fortunes of different culinary herbs and spices, it would seem probable that as the centuries went by, lovage leaves may simply have been replaced in recipes by parsley and celery which have a similar taste/flavour profile. By charting the history of lovage's use in cooking, this narrative historical review is intended to draw gastronomic attention to a particularly versatile and flavourful culinary herb.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

No data was used for the research described in the article.

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