Chapter 17
Biodiversity, Conviviality, and Herbs in the Mediterranean Genius Loci

Maria R. Dalla Francesca

Key Points

- The first objective of this chapter is to discuss the link between the need for conservation and improvement of biodiversity to protect and promote in modern era two of the key components of the Mediterranean pyramid: biodiversity and conviviality.
- Biodiversity is a characteristic of a place, intimately related to the Genius Loci, the spirit of the place, as it was defined by the ancient Romans. The bonds between people and the place they live in contribute to the heritage and social capital of the communities involved. This heritage influence human and dietary behavior, and extends beyond regional boundaries as people and ideas migrate to different regions of the world. In the traditional Mediterranean concept of lifestyle, conviviality, i.e., eating a meal together, goes far beyond the needs of satisfying nutrition requirements.
- Sharing meals represent a moment for socialization, which is central to celebrating the culture, environment, and biodiversity of many civilizations including those that have populated for centuries the Mediterranean basin. The second objective of this chapter is to present examples of herbs that contribute to the biodiversity and are at base of the traditional Mediterranean diet pyramid with information about their origin and use in meals, and water and herbal infusions.

Keywords Mediterranean lifestyle • Biodiversity • Conviviality • Environment • Herbs

Introduction

In the 1980s, food advocates [1, 2] launched their call for the protection of regional cultures to contrast trends towards globalization of foods choices and lifestyles. The impetus behind these “slow-food” initiatives was the idea that the introduction of food solutions void of links with the local customs and regional agriculture would be disruptive of the socioeconomic elements that...
contributed for centuries to the evolution and prosperity of regional communities. The transition from traditional agriculture practices to a modern, more intensive, production has led in recent history to global changes in food supply challenging the use and sustainability of natural resources. One objective of modern agriculture has been to more efficiently produce food for an ever growing world population. Unfortunately, this has been paralleled by an increase in food insecurity not only in undeveloped countries but also in Western societies. More urban communities have distanced themselves from traditional agricultural practices, which as the etymology of the word suggests, derives from the Greek term “agro”=field and Latin “cultura”=taking care of. Not surprisingly, during the last three decades we have witnessed an increase in efforts that promote a more sustainable and regional agriculture, attentive to the preservation of the environment and production of foods to meet the nutrition needs of local communities [3, 4]. Modern “foraging” is perhaps the metaphor that best encourages the adoption of a more eco-friendly pattern of subsistence and better use of natural resources [5–8].

Didactic programs strive to develop farm-to-table initiatives that reduce the “distance” between agricultural production and food preparation and consumption, a phenomenon that has also been referred to as “Zero Km” food. During the last three decades these “organic” approaches have found support through a myriad of initiatives that promote marketing and consumption of locally produced foods and traditional heritage. These include regional farmer-run markets; farm-to-table events; educational garden and kitchen programs; and youth agricultural education training.

The interdependency between food agriculture and culture has been recognized throughout Mediterranean history (Fig. 17.1a, b). Examples of artistic accounts of Mediterranean foods for culture are the paintings of the seventeenth century painter Bartolomeo Bimbi. Entrusted by the Grand Duke of Tuscany, Italy Cosimo III dei Medici, painter Bimbi produced paintings representing biblical foods such as pomegranate and figs, along with pears, grapes, plums, farm animals and birds in traditional landscape settings. Another example is that of the sixteenth century Italian painter Giuseppe Arcimboldo who created human images made of various fruits, vegetables, and fish. Examples of other famous artists who recognized in their work the role of agricultural landscapes, grapes and wine include Tiziano, Picasso, Rubens, Morandi, Tiepolo, and Poussin among many others. Clearly, these examples highlight the interrelationships between agriculture, foods, and communities.

**Biodiversity**

Biodiversity encompasses the totality of the forms of life that compose an ecosystem and the variations within [9]. Thus, biodiversity is unique to every ecological niche and intimately related to the *Genius Loci*, or “the spirit of the place,” which in ancient Roman tradition was the protective spirit of a place. It was the spiritual part of the land that originated from the peculiarity of colors (e.g., the lush green of well irrigated areas compared to the sandy-brown color found characteristic of drought regions); geography (e.g., mountain ridges compared to flat agricultural plains or coastal areas); lifestyle (e.g., intense urban settings vs moderate or laidback agricultural areas); and flavors (e.g., types and freshness of local foods and meals available to communities). The dietary vocation of the Mediterranean genius loci is therefore the result of interactions between all form of life (plants and animals) and communities that have inhabited this region for millennia. The *Genius Loci* is the cumulative inspiration deriving from images, scents, flavors, views, etc. that accompanies individuals and populations even after they physically distance themselves to recreate their original customs. The conservation of the Mediterranean *Genius Loci* should therefore be considered an important societal task among inhabitants of the Mediterranean countries in order to preserve food heritages associated with healthy eating.
Conviviality

The Mediterranean diet, declared a world heritage by UNESCO in November 2012, is an important component of a lifestyle that promotes well-being and an eco-friendly environment. In the traditional Mediterranean culture, a component of socialization is conviviality, i.e., eating a meal together not just to satisfy nutrition needs, but also to celebrate the culture, environment, and biodiversity of communities that have populated for centuries the Mediterranean basin [9–11]. Proposing, offering, and sharing of foods have been, and remain still today, very effective ways to communicate with people, while stimulating curiosity for new customs and better ways to prepare foods. In modern times, eating meals together is still a popular venue (e.g., lunch meetings, conference and town gatherings) for building and expanding a network of collective knowledge; developing new opportunities for commerce; and celebrating traditional practices that would otherwise be lost. The Mediterranean pyramid with its inclusion of conviviality is an inspirational model than can be adopted beyond the boundaries of the Mediterranean region. It provides ideas for healthy living; creates connections between people and their environment; and provides stimuli for cultural exchange.
Vernal Mediterranean Herbs

Herbs are key components of the Mediterranean pyramid and lifestyle. For centuries, home grown herbs have been part of the Mediterranean medicine and cuisine through their inclusion into food recipes or for the preparation of water and herbal infusions. This section will highlight some of the culinary and medicinal use of selected herbs that are easily available and/or cultivable in the Mediterranean region, but may not be utilized in today’s way of life. We focus specifically on vernal (Latin “vernalis” = related to Spring) herbs as this season is the time of the year that in the Mediterranean region offers the richest herbal biodiversity. Table 17.1 summarizes selected herbs used in the Mediterranean region for culinary and medicinal applications.

Table 17.1 Selected herbs used in the Mediterranean region for culinary and medicinal applications

<table>
<thead>
<tr>
<th>Common name</th>
<th>Botanical name</th>
<th>Properties and use</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lavender</td>
<td>Lavandula angustifolia Mill.</td>
<td>Flowers are used to flavor water drinks Derives its name from Latin lavanda. The genus name derives from the fact that it used to be added as a perfume to bath water</td>
<td>[17]</td>
</tr>
<tr>
<td>Lemon balm</td>
<td>Melissa officinalis L.</td>
<td>Flowers are used to flavor water drinks Takes its name from the Greek melitina melissa, “honey bee”, likely because it is a plant greatly appreciated by bees</td>
<td>[17, 21, 31, 33]</td>
</tr>
<tr>
<td>Elder tree</td>
<td>Sambucus nigra L.</td>
<td>Flowers, buds, berries, bark, leaves, and roots are for various culinary and medicinal applications. The elder tree is a plant present throughout the Mediterranean region</td>
<td>[21, 41, 42, 46]</td>
</tr>
<tr>
<td>Juda’s tree</td>
<td>Cercis siliquastrum L.</td>
<td>Flowers are used in brine with capers</td>
<td>[23]</td>
</tr>
<tr>
<td>Borage</td>
<td>Borago officinalis L.</td>
<td>Flowers are used to flavor Tzatziki Greek yogurt in place of cucumber and to prepare rice dishes</td>
<td>[26]</td>
</tr>
<tr>
<td>Coriander</td>
<td>Coriandrum sativum L.</td>
<td>Derived from the Greek koris, “stink bug” with reference to the smelling of the plant’s leaves</td>
<td>[47]</td>
</tr>
<tr>
<td>Common nettle</td>
<td>Urtica dioica. L.</td>
<td>The name is derived from the Latin urea, “to burn,” while dioica derives from the Greek “two houses”, indicating that male and female flowers are segregated in different plants. Leaves are used to dress cream made with ricotta cheese and with strawberry leaves. Also, used against arthritis, rheumatism, eczema, and asthma</td>
<td>[22]</td>
</tr>
<tr>
<td>Fig</td>
<td>Ficus carica L.</td>
<td>From Latin ficus, “fig,” and carica, which means originating from Caria, an ancient region of Asia Minor. Figs can be consumed fresh, dried, or in jams. The leaf syrup can be used with cheese, or in herbal medicine against cough and throat aches. The “milky” latex sap that pours out from the fig is medicinal for skin diseases but can cause allergic reactions</td>
<td>[17, 32, 44, 48-50]</td>
</tr>
<tr>
<td>Celery</td>
<td>Apium graveolens L.</td>
<td>Apium derives from the Greek apion. The Latin word «graveolens» means “very scented”. Celery leaves and stalks can be used to prepare soups with potatoes, lavender flowers, peas and little daisy flowers</td>
<td>[18, 51]</td>
</tr>
<tr>
<td>Garlic</td>
<td>Garlic. Allium sativum L.</td>
<td>From Latin allium, “garlic”, which derives from a word used by the Celts. The suffix all in Celtic means “hot”, “that burns.” Commonly used in the kitchen for pasta dishes with other herbs (e.g., Laurel), and for medicinal applications</td>
<td>[17, 30]</td>
</tr>
<tr>
<td>Laurel</td>
<td>Laurus nobilis L.</td>
<td>The word is related to the Latin term laus, “praise”, while nobilis means “noble”. For the ancient Romans the laurel wreath, called laurus or laura, symbolized victory, culture, knowledge, and power. Laurel berries are used to prepare liqueurs. It also features digestive and expectorating properties</td>
<td>[18, 32]</td>
</tr>
</tbody>
</table>

(continued)
Table 17.1 (continued)

<table>
<thead>
<tr>
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<th>Properties and use</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bermuda grass</td>
<td>Cynodon dactylon (L.) Pers.</td>
<td>The word <em>cynodon</em> derives from Greek <em>kyon</em>, &quot;dog&quot;, and <em>odos</em>, &quot;tooth&quot;. <em>Dactylon</em> is Greek for &quot;finger&quot;, because the inflorescence is composed of five parts like the fingers of an open hand</td>
<td>[20, 52]</td>
</tr>
<tr>
<td>Strawberry</td>
<td>Fragaria vesca L.</td>
<td><em>Fragaria</em> was used by the Roman writer Pliny the Elder (Como, 23 A.D.–Stabia, 25th August 79 A.D.) in <em>Naturalis Historia</em>, to indicate the plant. It could be derived from the Sanskrit <em>ghra</em> or the Latin <em>fragrans</em>, both referring to the fresh scent of fruits. <em>Vesca</em> derives from the Latin <em>vescus</em>, &quot;soft&quot; due to the softness of the fruit. Strawberry leaves are used in the kitchen to prepare herbal teas and pastries, and in herbal medicine to alleviate iron deficiencies</td>
<td>[17, 23]</td>
</tr>
<tr>
<td>Common hop</td>
<td>Humulus lupulus L.</td>
<td>Derived from Latin <em>humus</em>, &quot;earth&quot;, with reference to the species' habitat, and <em>lupulus</em>, &quot;small wolf&quot;, referring to the wild appearance of the plant. Used to make herbal teas</td>
<td>[17, 22]</td>
</tr>
<tr>
<td>Goat's beard</td>
<td>Aruncus dioicus (W.F.)</td>
<td>The term <em>aruncus</em>, derives from the Greek <em>aryngos</em>, &quot;goat's beard&quot;, refers to its white buds which resemble the beard of a goat. Can be used to make herbal teas</td>
<td>[17, 22]</td>
</tr>
<tr>
<td>Butcher's broom</td>
<td>Ruscus aculeatus L.</td>
<td>The name <em>ruscus</em> relates to the Greek <em>rhynchos</em> meaning &quot;beak, rostrum&quot;, <em>aculeatus</em> means &quot;pointed&quot;; both terms refer to the thorny branches of the plant. The young shoots can be eaten as asparagus</td>
<td>[17, 34, 51]</td>
</tr>
<tr>
<td>Wild asparagus</td>
<td>Asparagus acutifolius L.</td>
<td>The name derives from the Persian <em>asparagus</em>, &quot;bud&quot;, while <em>acutifolius</em> is a Latin term meaning &quot;having pointed leaves&quot;. Used extensively in dishes of Mediterranean countries. A slightly bitter, diuretic, acts as painkiller against rheumatic pains</td>
<td>[17, 34]</td>
</tr>
</tbody>
</table>

Traditional Culinary Herbs, Dishes, Drinks, and Infusions

Selected herbs were selected to represent as much as possible culinary traditions of various Mediterranean countries. Because of space limitation not all relevant literature could be cited. For additional details on plant classifications, regional plants, and ecosystems we refer the reader to a number of selected publications [12–16].

Lamb's Lettuce (*Valerianella locusta* (L.))

This herb belongs to the genus *Valeriana*, which derives from the Latin word "valere" or to be strong, for its many medicinal properties [17]. The term *locusta* refers to the grasshopper that feeds on these plants. Both the common name of the species, "lamb's lettuce", and the scientific one *Valerianella*, in which the suffix -*ella* transforms *Valeriana* into its diminutive, likely refer to the unassuming, "humble" appearance of the plant. Widely available commercially, it grows spontaneously in Mediterranean countries and is cultivated organically. There are three kinds of *Valerianella* plant with different size leaves. The cultivars available commercially have the largest leaves, while those growing spontaneously are the smallest. The smaller the leaves, the more intense are the color of the leaves and their flavor. *Valerianella* is used for the seasoning of egg-based dishes and vegetable soups, and it has cleansing properties [18–20].

(continued)
Dandelion (Taraxacum officinale, L., Weber ex F.H. Wigg)

The word Taraxacum probably derives from the Perso-Arabic “タルク chakok” meaning “bitter grass”, or alternatively from the Greek “ταρασσω” which means “to agitate”, and therefore “the herb that can heal agitated bodies” [21]. The term “officinale” indicates a medicinal use, from the Latin “officina” meaning “laboratory”. Its brined flower buds taste surprisingly similar to capers and the syrup made from the flowers is indistinguishable from dandelion honey. Its raw leaves enrich salads and can be a great cooked vegetable when sautéed with garlic. From its toasted roots, a good coffee substitute can be obtained. It has cleansing and detoxifying properties and is rich in vitamin C [20, 22].

Malva (Malva sylvestris L.)

The name Malva originates from the Greek word malakhe, meaning “emollient, benevolent”, with reference to the plant’s properties, while the term sylvestris indicates a plant growing in an uncultivated land (from the Latin sylva, meaning “forest”). Various parts of the plant (buds, leaves, and purple flowers) can be mixed together to prepare rice dishes and vegetable soups (Fig. 17.1c). Battering and frying of the flowers and mixing of buds in salty water are excellent to prepare tasty dishes. This plant features emollient, laxative, and anti-inflammatory properties [17, 20, 22].

Goat’s Beard (Tragopogon porrifolius L. and Tragopogon pratensis L.)

The scientific name derives from the Greek tragos, “male goat” and pogon, “beard” with reference to its hairy seeds resembling a goat’s beard. Porrifolius means “having the leaves of a leek” which are narrow and long, while pratensis means “growing in meadows”, clearly connected to the species’ habitat. Dried roots can be milled into flour and used to prepare breads and sweet dishes, whereas the sprouts can be used in combination with various vegetables and egg-based dishes [17, 22–24].

Borage (Borago officinalis L.)

The name probably derives from Latin borra, rough wool fabric, due to the rough feel of the plant. The blue flowers possess a cucumber-like flavor and are used fresh in vegetable salads. They possess anti-inflammatory and purifying properties. The leaves instead are dried and are served fried, or are used to prepare various handmade pasta, rice dishes, or cooked like greens [17, 22–27].

Burdock (Arctium lappa L.)

Derived from the Greek arctos, indicating the bear, arctium perhaps refers to the prickly appearance of the plant, while lappa may come from the Greek labein, “to hang to”, because its fruits stick to clothes and for this reason are often used in children games. After boiling, stalks and roots can be served as a side dish. Various parts of the plant are also used in cosmetics or as a natural remedy against dermatitis [17, 22, 28, 29].

Peppermint (Mentha x piperita L.)

The genus name comes from the Greek Mintha, a Naiad or water nymph. Piperita means “with the scent of pepper” because of the strong smell and sting of this plant. Pepper in Latin is piper. Mint, which was nicknamed edysmos (“aromatic”), was used in ancient Greece in burial rituals, along with rosemary and myrtle, to mask the odor of the decomposing body. Because of its strong scent, various
parts of the plant were used as antiseptic to prepare drinking water or even as a defense against various parasites. Mint twig remains have also been found in an Egyptian tomb [17, 30–32]. This herb can be used in a variety of salads or with fresh fruits.

Judas’ Tree (Cercis siliquastrum L.)

Derived from the Greek kerks, “small boat” or “spool,” and from the Latin siliqua, “pod”, both referring to the shape of the fruit, which is similar to a small boat. The carob is called siliqua, and siliquastrum is a pejorative term indicating false carob. The tree is very common in Palestine [17, 33–35]. The flowers are edible.

Pea (Pisum sativum L.)

The word pisum is Latin for pea, while sativum means “edible”. Raw peas are consumed regularly in Middle East countries facing the Mediterranean Sea such as Lebanon. Historic accounts document that even the Doge (Chief in command of the Venetian Republic) ate rice and peas-based dishes (risi e bisi) on Ascension Day (June 2nd) and on April 25th, St. Mark’s day, Patron Saint of Venice. The same rice and peas dishes were consumed to celebrate the arrival of Spring [24, 25, 30, 36–40].

Primrose (Primula vulgaris Huds.)

The genus name Primula is a variant of primus meaning “first” in Latin and indicates the precociousness of its blooming at the end of winter, beginning of spring. It is used in soups and baking of sweets [17, 23].

Chickweed (Stellaria media, L. VIII.)

The Latin genus name refers to its star-shaped flowers, while the term media means “of average size.” This plant grows throughout cold winters until spring suggesting it possesses unique features of freezing tolerance. Its leaves are extremely delicate like those of vegetables grown in a greenhouse. On the other hand, once picked, it degrades much more quickly than many other vegetables [17, 20]. It is used to make salads and water infusions.

Garden Sorrel (Rumex acetosa L.)

The name comes from the Latin rumex, meaning “beam” or “spear”, referring to its pointed leaves. The term acetosa means “acidic”, with reference to the taste of the leaves, which are used in vegetables soups or mixed with fried eggs, or for thirst quenching. It has diuretic, refreshing, and anti-inflammatory properties. It can be used to prepare salads with extra virgin olive oil and salt. Due to its inherent acidity, this herb can be used in place of vinegar to prepare salads [17, 20, 35].

Sorrel (Oxalis acetosella L.)

It derives its name from the Greek oys, “sharp”, “stinging”, and hals, “salt”, due to the presence of oxalic acid, while acetosella is a diminutive of acetosa, indicating the plant acidic taste and its small size.
The leaves are used to prepare water infusions, and sweet and fruit dishes that possess detoxifying benefits. In kitchen demonstrations, the juice of oxalis can be used for pH litmus tests in place of other acidic solutions (e.g., lemon juice) along with the juice of a purple cabbage (Brassica oleracea L. cultivar capitata). The oxalis juice will turn the color of the cabbage juice from purple to pink. Then, the addition of the common oat’s grass blades (Avena sativa L.) in place of sodium bicarbonate (a base) would turn the pink color into green [17, 18, 20, 22–24, 40].

The Elder Tree (Sambucus nigra L.)

The elder tree (Sambucus nigra L.) is also called “gypsies grapes” due to its similarity to small grape bunches (Fig. 17.1d). The Latin term, sambucus originates from the Greek sambukê [21], which is a musical instrument [41, 42]. This tree was considered sacred by the Greeks, who called it actéa, from Sanskrit açnati = nourishment. Its flowers are used to make syrups for the treatment of cough and flu symptoms; its black, glossy berries are also used to prepare excellent syrups, wines, and delicious jams. Neuralgia-soothing herbal tea can be made from its buds while the leaves can be used for dermatological applications. Also, a syrup can be made from its berries to treat airway inflammation. The bark of the elder tree has been shown to alleviate glaucoma symptoms whereas the roots exert anti-gout effects. The marrow, mixed with honey and flour, is used to soothe the pain of dislocations [17, 43].

Coriander (Coriandrum sativum L.)

The leaves of coriander are used throughout the Mediterranean region to prepare vegetable soups, seasoning of salad and meat dishes; and are served in combination with soft bread and ricotta cheese (Fig. 17.1e). The seeds are used to flavor many dishes and to prepare alcoholic drinks. In the sixteenth century during the Carnival festivities coriander seeds were sugar glazed, and it is for this reason that the name remained in the Italian vocabulary indicating multicolored sweets, coriandoli. The coriander was among the herbs offered by Egyptian kings in temples, and seeds have been found in Tutankhamun’s tomb [17, 30].

Fennel (Foeniculum vulgare Mill.)

Foeniculum is Latin for “small hay” [33], with reference to the hay-resembling smell. The Greek name for fennel is marathon [21]. The name of the town Marathon, linked to the memory of the famous battle in which the Athenians defeated the Persians in 490 B.C., derives indeed from the fact that a lot of fennel grows in the area. The Roman writer Pliny the Elder, recommended fennel as a sexual stimulant. In the Medieval Ages, the crafty Venetians used to give their wine buyers some fennel to eat so as to confuse their palates; a cunning method to make them unable to distinguish a lower quality wine from the high quality one they were paying for. In Venetian regional dialect the verb “infonocchiare”, is used to suggest “to fennel”, meaning “to swindle”. Fennel leaves and seeds are used extensively in Mediterranean countries to flavor salads, egg and meats dishes, and pastries.

Grapevine (Vitis vinifera L.)

The word vitis is Latin for vītis which derives from the Indo-European word viere meaning “to curve”, “to weave”. In Cattabian’s Florario, the grapevine is listed among the cosmic trees due to the fact that, since Sumerian time, wine was related to youth and eternal life, so the vine was the plant of life
and immortality. Stuffed vine leave recipes with rice and cheese are used extensively in some Mediterranean countries including Lebanon and Greece among others [32, 44, 45].

Cherry Tree (*Prunus avium* L.)

The term *avium* in Latin means “of birds”. This is due to the fact that birds often eat cherries [33]. Cherry blossoms are used to prepare desserts of “panna cotta”, a pudding made with milk, honey, corn starch, and topped with dandelion flowers or fig leaves syrup.

Various Flowers and Leaves Can Be Used to Prepare Desserts

For example, ice creams can be flavored with elder flowers, mint or lemon balm leaves; biscuits with lavender flowers or lemon balm leaves; chocolate with lavender flowers or mint leaves; and gastronomy accompaniment crunchy bite-size desserts made with hazelnuts, honey, and dried rose petals; and syrups can be prepared using fig leaves, elder flower, and pomegranate (Fig. 17.1f).

Damask Rose (*Rosa x damascena* Herrm)

The Latin word *damascena*, means “coming from Damascus,” a town in Syria. This species is spread throughout the Middle East and Europe. It has very strongly scented petals that are edible and can be used also in herbal teas.

Conclusions

Food biodiversity and conviviality represent important aspects of the Mediterranean pyramid. Herbs are at the base of the traditional Mediterranean diet, and agricultural and medicinal practices. These qualitative and lifestyle elements have contributed for centuries to the health and socioeconomic well-being, and culture of residents of Mediterranean countries [53]. They may offer a platform for improving the way of life in other communities and countries. To this end, more didactic and farm-to-table programs are needed to restore and preserve the richness of regional agriculture and cuisines that promote the production of traditional foods and ingredients for socioeconomic sustainability and healthy living.

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