

Eatable Gardens

cultivate your own herbs



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The unity

Title	Eatable gardens... cultivate your own herbs
Area	Organic, small scale production
Main Target Audience	<p>The end users of the module are:</p> <ul style="list-style-type: none"> • Students of the participant institutions • Adults interested in issues related to organic • City residents. • Adult training centers • Amateur gardeners
Description of the module and general aims	<p>This module allows the participant to understand:</p> <p>The role of herbs in food</p> <p>The use of herbs in food</p> <p>Their importance in cooking</p> <p>Herbs most commonly used in Europe</p> <p>Nutritional and functional properties of herbs</p>
Learning Time and Duration	<p>Learning time and maximum duration for the training related to the module:</p> <p>The maximum duration of training is 24 hours, distributed as follows - 8 hours of theoretical training;</p> <p>- 8 hours for visits (farms, processors, markets)</p> <p>- 8 hours of practical work.</p>
Learning Objectives	<p>In this training unit it is intended for the student to acquire knowledge about:</p> <ul style="list-style-type: none"> - some of the herbs more commonly used in European cuisine, - their features and benefits to health - the cultivation and use of eatable gardens. - some methods and ways to create an eatable garden in small spaces, re-using materials creatively and in that way, contributing to global sustainability.
Competences achieved	<p>Specific competences related to the project theme:</p> <ul style="list-style-type: none"> - Understanding of main benefits of the herbs used in European food - some techniques to create an eatable garden in small urban spaces. - the re-use of materials and to create new features in vacant spaces.
Pedagogical methods used (selfstudy, group work, distance learning, etc.)	<p>Type of activities considered useful for the training of this module:</p> <ul style="list-style-type: none"> • Theoretical learning /blended learning/: <ul style="list-style-type: none"> - face to face; - group discussions - online learning. • Practical learning: <ul style="list-style-type: none"> - workshop - self study

1. Abstract

The module aims to introduce the main benefits of the herbs used in European food and identify some ways and techniques to create an eatable garden in small urban spaces. These techniques also aim to encourage the re-use of materials and to create new features in vacant spaces.

Key-Words: Healthy food, nutrition, recycling, sustainability.

2. Introduction

The increased demand for a healthier life coupled with a progressively aging European population, has tendentially encouraged citizens to take a growing awareness about food.

The European market is the second largest consumer of spices, seasonings and herbs, being the most important the parsley, the thyme and the oregano. The use of natural products cultivated at home without pesticides therefore is an interesting alternative in Europe and also in the rest of the world.

Nevertheless, the use of urban space becomes increasingly expensive and complicated due to the growing world population and its agglomeration in large cities. Then come some questions: Why not cultivate your own food instead of buying it? How to do it with the constraints in the existing space today?

The cultivation of herbs at home or in small spaces demonstrates that it is possible, even in small spaces, producing at least part of own food and have fresh and healthy food always available on table.

There are several models and cultivate procedures that can be adapted to every need, so, after the presentation of some of these, it is expected to learn about obtaining a better use of available spaces as well as how to take advantage of natural foods in diet, using recycling materials.

Section I

3. Core contents

3.1. The Role of Herbs in Food

Known since ancient times, herbs have been used in the kitchen mainly due to their medicinal value. Religious traditions and the flavor and good taste given to the recipes and dishes are other reasons.

In the Middle Ages, the culinary use of spices intensified, becoming a way to color and decorate the dishes. The Romans, through their travels, were responsible for the introduction of rosemary, thyme and savory in Central Europe and for bringing the Middle parsley, basil and sage. Also the discoveries of Marco Polo and the intensification of trade routes with the East led to the discovery of more herbs.

Currently in Europe, herbs remain essential in food and the choices of chefs are oriented to their innovative uses and for the more traditional combinations of each country. In the latter case, examples are the use of tarragon, thyme, bay leaves and garlic in France, the frequent use of basil, sage and rosemary in Italy or the oregano and parsley in Greece and also the use of parsley, oregano and the coriander in Portugal or sage and thyme in Britain.

3.2. The use of herbs in food

Herbs can be divided into several categories: fresh, fragrant, citrus, sugary, spicy, bitter and pungent. Normally they are mainly used to impart fragrance and flavor and are not responsible for the dominant flavor of the dish. Nevertheless, when added early in the cook, they release their aromas. If placed at the end of the recipe or in the own dish before serving, the herbs retain their freshness, flavor, texture and color.

According to their characteristics, to obtain the best result and benefit, the herbs should be used in different culinary moments, as appears below.

In addition to the leaves, flowers and also the seeds of herbs have use in cooking to enhance the flavor of foods. It should also stress the importance of their use in fresh rather than frozen or dried.

Moments of Use

Dried herbs : always at the beginning of cooking
Tough herbs (rosemary, lavender and thyme): Before or during the cook process.
Because their resistance to long cooking processes, to recover flavor may also be added bites at the end.

Strong herbs (mint, tarragon, marjoram and lovage): added during cooking.

Re-use of materials.

Waste production decrease.

3.3. The importance in cooking

Herbs positively transform the food and some combinations seem even exist to be used. Examples are the basil with tomato, tarragon with chicken, thyme and rosemary with lamb meat and oregano with cheese and eggs. Yet to reveal the fragrance of fresh herbs in salads or cooked vegetables scattered about and the importance and uniqueness of the aesthetic and decorative effects of different types and formats leaves in specific recipes and dishes. While the farming of fresh herbs at home is not usually related to the presentation of the dish but with concerns about the taste and health, it is a fact that the aspect can be considerably improved with the resources of some herbs. Even the best stews, casseroles or soups can become more appetizing and attractive when the fresh herbs are chopped and spread at the last moment. Moreover, the herbs also make them different, more attractives and embellish the broths and sauces.

3.4. Herbs most commonly used in Europe

There are several herbs included in gastronomy, outstanding among which are the more frequently used in Europe .

- **Chives** – The chive goes well with almost everything giving it a very special flavor. Can be used from salads to cooked meat, being good companion of many dishes. Chives should not be used chopped. Must be cut with scissors and added only between 2-5 minutes before the dish be served to maintain its characteristic flavor.
- **Coriander** - Together with the parsley, coriander are one of the herbs most commonly used in the South of Portugal, being an integral part of the

Mediterranean diet. Originating from southern Europe and the Middle East, coriander distinguished by flavor, and taste that give the recipes.

- **Peppermint** - Probably the herb with the most striking aroma. Originally from Asia, the peppermint is used for various purposes, ranging from the confection of teas and juices (eg pineapple and mint), to its addition to fruit salads, among others.
- **Laurel** - The laurel is identified by the particular smell and the intense flavor that distinguishes it from other aromatic herbs that usually does not have a strong flavor. When used in high doses or prolonged cooking intensifies the flavor. Thus, moderation in their use and their removal before serving is recommended due to the bitter taste that can instill. It is usually associated with meat recipes and fish.
- **Oregano** - Oregano are excellent ingredients for salads, pizzas or snails, where are considered the main secret of its magnificent flavor. It comes from a plant that likes a lot of sun and is very resistant and very good for growing at home.
- **Parsley** - With white flowers and aromatic leaves with a particular smell is the main aromatic herb used in Portugal and gives the characteristic and special taste to many dishes of Portuguese cuisine. While in some countries is traditionally used only for garnishing food, the fresh parsley is also an excellent activator of flavor in soups and sauces. When added to a bit of crushed garlic and flavored extra virgin olive oil is a finishing touch to meat dishes and grilled fish.
- **Basil** - Basil has in its leaves (green leaves) an astonishing aroma and pungent flavor. Widely used in Italian and French cuisines to flavor the tomato, is also mixed in salads and various sauces like Italian pesto. The leaves should be torn with fingers into small pieces so do not lose their color (just in case the pesto they shall be cut off).
- **Thyme** - It is suitable for long cooking and stews and can be used in dry and cool, with no loss of flavor. It is a good combination with meat (lamb, pork, chicken), fish and eggs. Its important to have attention to the amounts of thyme used in order to its flavor not overpower all the other ingredients in the recipe.
- **Pennyroyal** - It has aroma and refreshing taste, similar to that of peppermint. It is ideal with fruit salads or vegetables, lamb, dishes, sanils, juices, cocktails and teas. It is often used in fish stews and other cooked, such as the more traditional soup in Alentejo region-Portugal ("açorda").

- **Tarragon** - The flavor of tarragon leaf is sweet and slightly spicy at the same time, similar to anise. Incorporates a special touch in salads, fish and meat dishes, sauces, olive oils and vinegars. It is used to flavor soups, sauces, stuffings, fish dishes, poultry dishes, roast beef, steaks and also for omelets, asparagus, crab, boiled eggs and white cheese.
- **Rosemary** – The rosemary combines with pork and poultry meat, in fish roasts, lamb, goat and calf, and, in baked potatoes and sausages (sausages). Can also be used in sauces and grilled. It has fresh and sweet taste and is recommended in the preparation of meat, especially pork and lamb and potatoes and flavored butters. Your sprigs are also very decorative.

3.5. Nutritional and functional properties of herbs

“Let food be the medicine and the medicine be the food”, is an advice with more than three thousand years, assigned to the father of western medicine, the greek Hippocrates which clearly demonstrates the link between nutrition and its medical benefits. Thus, an healthy diet is the basis of a good life.

Generally, herbs are known to be able to replace salt even in marinades, making healthier foods. Individually, however, earn very distinct features, some proven and others culturally transmitted, as listed as follow.

- **Chives** – Accelerates digestion, stimulates the appetite and, strengthens the stomach. Lowers blood pressure. Containing vitamins A and C is used in addressing the deficiencies of these vitamins.
- **Coriander** – The seeds are rich in retinol, thiamine, riboflavin, niacin, calcium, phosphorus, iron and ascorbic acid. The fruit also contains vitamin C. The coriander are warmers, carminative and stimulant of the digestive functions. Help disguise the breath when chewed immediately after the consumption of garlic. They are rich in magnesium, calcium, iron, phosphorous, fibers and ascorbic acid. The coriander tea relieves stomach pains and flatulence problems. Some cultures believe they are aphrodisiacs and increase the mammary glands.
- **Peppermint** – The peppermint tea, made from the leaves, is a known diuretic and dewormer and an excellent stress reliever. It is also used to combat the stomach pains. The leaves contain vitamins A, C and B complex , minerals as calcium, phosphorus, iron and potassium.

- **Laurel** – The laurel is rich in iron, Vitamin A and Vitamin E. The tea from its leaves have the power to relieve menstrual cramps, regulate menstrual cycle, help heal skin infections and ear, combat the fatigue, the hemorrhoids, the rheumatism and the bruises and also help make better digestion and act as appetite stimulator. The oil made with laurel berries is know for its anti-inflammatory properties.
- **Oregano** – The active components of oregano helps fight dyspepsia, nausea and flatulence, by stimulating the gastric and biliary functions. In addition is diuretic and a good source of nutrients such as iron, manganese, fiber, calcium, vitamins (A and C) and omega 3. It can also be used to reduce cholesterol levels and treating cancer colon. The oregano tea effectively helps fight the toothache, colds, cough and hoarseness.
- **Parsley** – Considered an anthelmintic, carminative and stimulant of the digestive functions is indicated in cases of flatulence and diarrhea. Helps to disguise the breath when chewed immediately after the consumption of garlic. The parsley other functions such as diuretic action, stimulating and antiseptic, especially in urinary tract infections. If it is consumed raw is rich in vitamins A, B, B2, C and D.
- **Basil** – Stimulates the appetite, accelerates digestion, prevents the swelling and improves kidney function and mucous. The gargling with Basil relieve sore throat, mouth ulcers and bad breath. In some cultures, it is believed that Basil is great for people with problems of aggression and that their tea helps timid people to release the contained love. Also prevents the entry of negative energies when placed in the front door.
- **Thyme** – This herb is considered a healthy salt substitute. It is rich in vitamins C and B complex and magnesium. It is considered digestive, anthelmintic and stimulant, while helping to relieve headache. In oil is used to rinse your mouth against bad breath, sores or inflammation. The thyme tea is indicated for the treatment of coughs, colds and flu. It is also considered a good companion in times of hangover.
- **Pennyroyal** –In some areas of Portugal the pennyroyal tea remains a highly recurrent remedy in case of flu, constipation, coughs and bronchitis. Also acts as a digestive.
- **Tarragon** - The tarragon stimulates the appetite and speeds up digestion. It has a diuretic and anti atherosclerotic effect. The Tarragon leaves are rich in iodine, in minerals and in vitamins A and C. The tea of tarragon is a digestive and tonic,

relieves menstrual cramps , helps in proper functioning of the digestive system and is a good stimulant to the brain, heart and liver. The tarragon is also known as "dragon herb".

- **Rosemary** – It acts as a digestive and diuretic. As tea, helps digestion, is a great sudorific, revives the memory, helps to combat fever and pains, and is also suitable for colds and bronchitis and to alleviate hair loss and the dandruff. Originally from the Mediterranean, rosemary is a symbol of fertility and in the Middle Ages it was used to purify the sick's rooms. As its odor is stimulating, the Greek students wore branches in their hair to alert the memory during exams.

Section II

4. Put into practice




4.1. From Theory to Practice: Your Eatable Garden



After presenting the main herbs used in gastronomy and their nutritional and functional benefits, this second part, more practical, intends to show how to achieve one own eatable garden and its advantages.




The habit of consuming food grown in small gardens, helps to provide a good physical and mental development and offers people who grow a better quality of life and a healthier diet. Additionally, all the food collected at home is rich in nutrients and is generally not treated with pesticides. Also, there are other benefits as those which are listed below.



It is not possible to list all the ways to achieve your own eatable garden. Thus, here are presented some options on how to grow, care and manage each one of the varieties of herbs previously presented.

	Characteristics	How to cultivate
Chives		
	<p>It has very thin, tall, green and cylindrical leaves. It is an onion family member with more attenuated taste. Yellow leaves on the plants may appear due to lack of light or only of natural causes in the inner sheet. It is a plant that has a very vertical growth.</p>	<p>In spring and summer it is advisable to have the chives abroad and practice a proper watering, several times and with a little amount of water (almost every day). In the autumn, the plant can be removed and placed in a window, to continue to develop even in winter. Harvesting should be moderate because the foliage is fragile and weakens easily. The cut should not exceed 1/3 of the leaves. Supports low and high temperatures and temperature fluctuations, provided no less than 5 ° C and above 25 ° C.</p>
Coriander		
	<p>Plant with green leaves, more rounded but similar to parsley. It is a plant with a smell and a taste characteristic and soft leaves. In case of big temperature fluctuation the plant has a tendency to condensation in the bags.</p>	<p>This plant needs a lot of care (is quite sensitive). It should be irrigated with little water quantity and often (when the surface of the compound is dry) it should be placed in a warm place. It needs light and be protected from wind or dries and dies. Inside home their growth is limited and takes some time. To one guaranteed success, the plant can be transplanted to the garden during the warm months.</p>
Peppermint		
	<p>The Peppermint is a lively and vigorous herbaceous plant that has erect leaves and a strong and pleasant aroma. From a cut, several branches can born. You can have black or yellow leaves at the base when there is lack of light in the center of the plant from a certain height.</p>	<p>It is a plant resistant to high and low temperatures, but it does not tolerate frost neither the minimum temperature which ensures the vitality of 5 degrees.</p> <p>It grows best in humid conditions and should be irrigated constantly although the roots can not get flooded because they can rot. Thus, a drainage system should be included to prevent water accumulation. The plant can be successfully cultivated outside home, preferably into a clay vessel, maintaining the compound wet to the touch.</p> <p>Depending on their development, the highest leaves and stems should be removed so that light reaches leaves growing. It is recommended to keep the temperature above 10 ° C.</p> <p>It should be planted always alone. "Its roots are aggressive killing nearby plants or suffer for a lack of space."</p>

	Characteristics	How to cultivate
Laurel		
	<p>It is a species native of the Mediterranean. It varies between 5 and 10m although it may reach up to 20 m high. The leaves are showy, leathery and with a very characteristic odor and therefore widely used in cooking. The fruit is a berry with black color when is mature. Furthermore, the wood from laurel is of excellent quality. Some of the most common trees have conical or pyramid format.</p>	<p>The plant needs a lot of sun to grow and therefore before planting should be chosen the most appropriate place for you to receive the sun's rays. Also take into account that frost may damage the plant so, if you live in an area prone to cold, it should be protected in winter. It requires good drainage so that the roots do not waterlogged and become rotten. Although possible their reproduction in cuttings, the growing takes a long time. Thus, it is recommended its purchase and posterior replace into a larger pot or a place in the garden. Watering should be moderate because its features allow the plant to resist very well to drought. As for pruning, we emphasize that laurel is an ideal tree to offer different ways options.</p>
Oregano		
	<p>The oregano are herbaceous and perennial plants with erect stems, opposite leaves, oval format and dark green color with approximately 35mm in length. It is characterized by their very aromatic smell and bitter taste. With an typically horizontal development may present, in longer days, flowers and some vertical stems.</p>	
Parsley		
	<p>Parsley is a biennial herbaceous plant with white flowers and aromatic leaves that are either crinkly or flat. It forms a rosette of very divided leaves whose mild flavor, it makes the plant one of the most populars.</p>	<p>Parsley survives both in summer and in winter (since sheltered from the cold or taken to the interior window sills). It is a plant that withstands temperature fluctuations.</p> <p>The parsley likes a reasonable irrigation to maintain the wet compound. Excessive watering leads to the formation of fungi. So it is convenient irrigate frequently but in small quantities.</p> <p>Sensitive to plagues, in order to prevent its exposure to plagues, the parsley should be placed next to the chives, asparagus or tomatos.</p>

	Characteristics	How to cultivate
Basil		
	<p>The basil is a herbaceous plant, green leaves and oval, very aromatic and fragrant. The shoots and leaves the smaller center are more wrinkled than the others.</p>	<p>Very sensitive plant where a leaf pinch creates a contusion (turns black) within 10 minutes. At the same time, it does not like extreme temperature changes, or very low temperatures (up to 12 degrees).</p> <p>The best way to take care of the basil is watered in small amounts so as not to flood.</p> <p>The basil grows rapidly and assumes its appearance as plant increasing the content of essential oils produced, which improves the flavor.</p> <p>It should be placed in a warm place and plenty of light. Its aroma get away flies and mosquitoes. The temperature should be maintained above 12 ° C.</p>
Thyme		
	<p>Thyme is a semi-shrubby plant with creeping stems, leaves and small flowers (pink or white) and a strong and intense aroma. It is a Mediterranean species that, despite be a creeping herb can be similar to a vine species.</p>	<p>The thyme likes well-drained soils but it adapts well to very dry soils. The very wet winters and waterlogged land can contribute to rot and die early. The watering in the peak hours should be avoided and be done only if the soil is very dry.</p> <p>In order to prevent the basis lignification and to remain strong and healthy for much longer, should be pruned right after flowering. Pruning should be frequent when growth is very vigorous. It's a great companion plant to other plants in the garden. Live well with the rosemary. It can be harvested at any time of year. Exists even in the colder months of the year when protected or placed inside home. Prefer temperate locations, although it is resistant to frost. The thyme withstand temperatures between 4 ° C and 25 ° C.</p>
Pennyroyal		
	<p>It is one of the most known species of the genus Mentha. It has erect stems quadrangular, highly branched and leaves lance-shaped, in color from medium and dark green. The flowers are small and pink.</p>	<p>It is an aromatic herb that prefers mild climates and places with plenty of light. Prefer moist soils, requiring quite irrigation. Can loom up to 50 cm, with rapid growth. The Pennyroyal requires temperatures above 7 ° C. It is considered a great flea repellent and moths</p>

4.2. Building your eatable garden

There are ways to mount an eatable garden suitable for the size of the available space, be it indoors or outdoors. This section will present some models that can help to implement alone an eatable garden.



Vertical garden with PVC

Can be inserted into balconies, windows or outdoor areas.



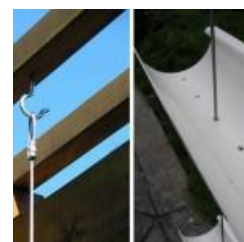
Materials needed:

3 rails PVC;
6 covers or PVC
trim; 2 steel cables
of 1/8 cut to th
desired extent; 6
rivets; 2 2 hooks to
attach;

The tools: drill, tape
measure, pen for
tagging and
protection for the
eyes.

Step by step:

1. With the help of the tape and pen, mark a straight line from end to end of the gutter. Then, with the drill, make distant holes 5-10 cm from each other;
2. Choose the location where the garden will be suspended (can be a wall or wooden stand) and attach the two hooks - for the correct distance between them, grab the gutter and calculate the distance between third holes of the two ends;
3. Then pass the two steel cables through third holes on each end of the rail. In the bottom of the stand, attach the steel tube with a rivet and finish with a metal semi-ring. Then, attach the cables to the hooks.
4. Finally, just slide the PVC caps.



The same technique can be used for indoor and outdoor.

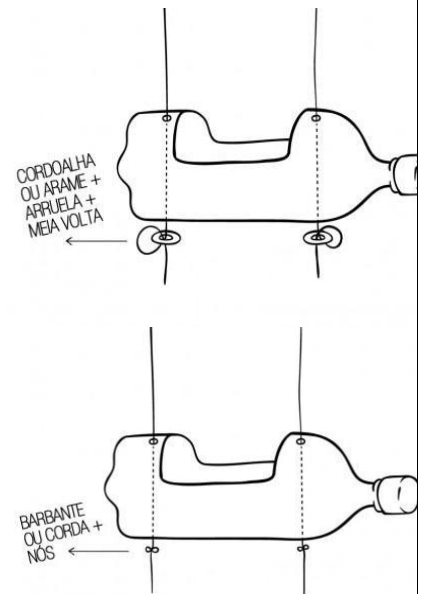


Materials needed: Setp by step:

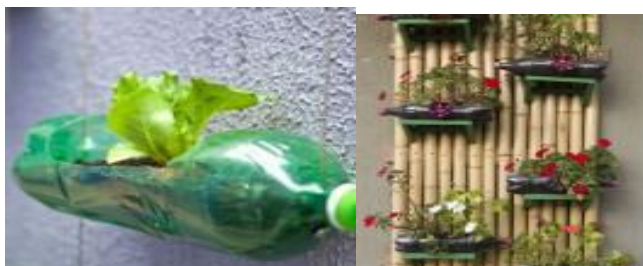
Scissors; Rope or clothing line; Cordage or wire; Seeds or small plants;

PET bottles of 2 liters (clean and empty).

1. With scissors cut a piece of the side of each of the PET bottles to be used. The cut must be similar to a window.
2. Near each of the openings, make one hole with the tip of the scissors. Remember that it is important the bottles maintain their symmetry to be hanging on the wall.
3. Make a small hole at the bottom of every bottle to drain excess water in the soil after the irrigation.
4. At the extremities of the PET bottles pass string and tie a knot more or less in the place where the pet bottle will stay hanging.
5. Place the compound, preferably fertilized and, then, the seed or the plant. Remember to put a layer of clay stones or newspaper in the bottom of the bottles, to allow water to drain.
6. Drizzle daily for the plants to grow properly and healthily.



This technique can also be used in different formats as shown below.



3

Shoe rack

This technique can be placed indoors or outdoors and is easy to perform.



Materials needed:

A shoe rack to hang;
Potted seedlings or just seedlings;
Soil/Humus;
Hooks for hanging.

Step by step:

1. Hang the shoe rack at the desire location with the help of hooks;
2. Attach the pots with seedlings in pocket or, if you prefer, just put the seedlings;
3. Complete with the soil/humus;
4. Drizzle with a spray bottle of water to prevent its accumulation in the pockets and the deterioration of the material.

4

Other creative and simple ideas

These techniques can be used in very small spaces and do not require much material or are difficult to build.



Questions

1. Name two benefits of producing your own herbs.

2. How long an eatable garden should be exposed daily to the sun?

3. How can retain longer the characteristics of herbs after harvest?

4. What is the main advantage of using aromatic herbs in food?

5. Why re-use materials in the construction of an eatable garden?

6. During cooking, in what moment should dried herbs be placed?

7. Give two examples of the main uses of herbs in the southern of Portugal, specially related with the Mediterranean diet.

8. Which herbs presented here have omega 3 and are known to reduce cholesterol?

Are you interested?

5. Further readings

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