



CATÓLICA
ESCOLA SUPERIOR DE BIOTECNOLOGIA

PORTO



Erasmus+

**Integration of good practices and new methods for professional training
in the field of herbs processing for food and food supplements
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CHAPTER 3

SPICES AND CULINARY HERBS

APPLICATIONS

*Ana Amaro
Tania Melo
Ana Amado
Manuela Pintado
Elisabete Pinto
Eduardo Cardoso*

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Introduction

Spices and culinary herbs applications sectors:

- food industry,
- perfume industry
- Cosmetics
- hygiene and cleaning products
- pharmaceutical industry.

In order to meet the varied needs of the population, from the world production of herbs

- 40% attributed to food industry
- 35% absorbed by the pharmaceutical industry.

Diversity of cultivated species

- Lemon beebrush
- Oregano
- Rosemary
- Lemongrass
- Rosemary
- Olive tree
- Pepper mint
- Lemon thyme
- Prince herb
- Echinacea
- Perpetual-purple
- Pennyroyal
- Lavender
- Thyme
- Fennel
- sage
- beautiful light thyme
- St. John's Wort of Gerês
- Savory
- Marjoram
-



Culinary applications of herbs

- There are several spices and herbs used in cuisine as condiments, from rosemary to thyme, but the consumer interest in trying new flavors and herbs available on the market has increased.
- Currently the food industry has focused on developing
 - mixed herbs ready for use
 - aromatic oils
 - liqueurs
 - dairy products.

The development of mixtures of spices is an opportunity to innovate and grow in the market

3.1 Condiments



Droughts: small doses

Fresh: Higher doses

3.1 Condiments

CORIANDER



Salads,
soups,
rice, pasta,
sauces,
peas and
broad
beans.

CELERY



Soups,
salads,
beef
(steamed,
stew or
cooked).

PARSLEY



Sauces,
salads,
fish, meat,
poultry
and soups.

BASIL



Meat, fish,
soups,
pasta,
cooked
with
tomatoes
and
vinegar.

3.1 Condiments

ROSEMARY



"scones"
and bread
and pork,
lamb and
duck.

FENNEL



soups,
salads,
sauces,
and used
to
accompan
y fish and
ham.

OREGANO



pizzas and
pastas
Dishes with
pumpkin,
zucchini
and
peppers,
still roast
beef or pork

SAGE



tomato,
potatoes,
vegetables
, minced
meat and
fillings of
birds.

3.1 Condiments

LIMONENE



Infusions,
salads,
desserts, olive
oil, vinegar
and drinks
(herbal teas
and liqueurs).

THYME



Herbal teas,
soups,
vegetables,
salads, fish,
meat and
stews.

LEMONGRASS



Tea, soft
drinks,
desserts.

3.2 Infusions

Infusion is the process of extracting chemical compounds or flavors from plant material in a solvent such as water, [oil](#) or [alcohol](#), by allowing the material to remain suspended in the solvent over time

An infusion is also the name for the resultant liquid. The liquid is typically boiled and then poured over the herb, which is then allowed to steep in the liquid for a period of time.

- Are very easy to prepare.
- Hot infusions (examples: Chamomile, Holy Basil, Ginger and Peppermint)
- Cold infusions (examples: Chia seed and fresh Lemongrass)
- Each flavor has its benefit.

3.2 Infusions

Today, tea and herbal infusions are the second most consumed beverage in the world after water, with literally thousands of blends in existence. Most infusions contain large quantities of calcium, magnesium and other minerals, including trace minerals, in their most absorbable form. They also contain essential fatty acids, vitamins and protein. In addition, they each have particular medicinal qualities, actions and uses:

3.2 Infusions applications

The detox

Black, green, white and oolong teas are all high in antioxidants, which makes them all beneficial for general health and wellbeing. When it comes to detoxifying herbal infusions, the suggestions are calendula, roasted dandelion, chicory root and nettle.

Dandelion and nettle have a diuretic effect, which helps the liver to flush out our body's toxins, reduces fluid retention and aids digestion.

Slimming down

Many scientific studies have shown green tea can assist in weight loss, partly because of its caffeine content but also because of its antioxidants, which have a thermogenic effect. This means it increases the metabolic rate, burning stored fat.

3.2 Infusions applications

A digestif

Peppermint is pretty key here as it reduces bloating and flatulence and will help with indigestion. Fennel seeds are also beneficial. They increase the secretion of digestive enzymes and can help with digestion that way. And if there's any pain or cramping, herbs like lemon balm can help relax the muscles around the bowel. Camomile and dandelion are also worth a try.

Reducing inflammation

The healing properties of rooibos, or redbush, are referred as reducing inflammation. It's up there with green tea with its antioxidants but it's also high in minerals and there's no caffeine. It's also a broad anti-inflammatory because of its high vitamin, mineral and antioxidant content.

3.2 Infusions applications

A boost in the morning

Lemonbalm is suggested as fantastic for the nervous system, and liquorice root, which promotes sustained energy release. Siberian ginseng boosts memory, concentration and energy generally.

Calming tonics

Passionflower is an anti-anxiety herb, which is good for beating stress. If you want a homemade stress buster, camomile tea is recommended, which is more readily available. Limeflower is also known for easing nervous tension, as is lemonbalm.

Camomile is relaxing and gently loosening so it's very good for people who get a tense stomach when they're stressed or lose their appetite. Linden has been referred throughout the ages for nervous tension, mild anxiety and may aid with sleeplessness.

Lavender is another good option before bedtime.

3.2 Infusions applications

Immunity boost

Echinacea is key in immunity-boosting since it increases white blood cell levels, so that helps fight infection. You can also look at other ingredients like elderberries and rosehip, which are high in vitamin C and can help fight infection.

A winter warmer

"Lemongrass and ginger are good for winter. Recommendations are brewing up a chai on those cold, winter days. It's black tea based and you can add all those spices to it, which warms your system and supports digestion.



3.2 Infusions applications

A cool-off in summer

Peppermint is the most obvious cooling tea, but any tea can be drunk hot or cold.

Lemongrass and ginger mixed with apple juice is a good solution. To make a healthy ice tea, make a pot of tea and steep your herb for five minutes then strain and add your mixer - apple juice is a really good one. In a normal glass, use 150ml of mixer to 50ml of the tea once it's been brewed. Then add ice.

Skin, hair and nail health

Horsetail is very high in silica, a mineral which is the base for promoting healthy hair, skin and nails. For skin, rooibos is also referred - "also known as a complexion tea" - and detox herbs.

Nettle is also high in silica and other minerals, and chlorophyll is great with cleansing the blood.



3.2 Infusions applications

Preparing for childbirth

Raspberry leaf tea is well-known as a uterine tonic among mothers-to-be. It softens the uterus and prepares for labour so it's good in the last trimester - along with anything that relaxes you and aids in sleep.

Breastfeeding support

Rooibos tea is the perfect tea for new mums. It's relaxing, it's high in minerals, it's got no caffeine. In South Africa where it's grown, they actually give it to babies for colic.

If the milk supply is not good, aniseed, fennel seeds and caraway seeds boost lactation. While you can make the infusions at home using what you have on your spice rack, they would first need to be crushed with a mortar and pestle so the nutrients are extracted and even then, you may not get the full flavour.

Herbal preparations

Teas (for fresh or dried herbs)

Steep an arbitrary amount of an herb in an arbitrary amount of hot (not quite boiling) water for an arbitrary length of time. Strain and drink.

“Nourishing” Infusions

These preparations should be made from nutrient rich "food herbs" such as Oatstraw, Nettles, Red Clover, and the like, and probably not when using plants with a more overtly "medicinal" action.

Pour water just off the boil over dried herbs in a mason jar in the following proportions:

Roots and Barks (28 g of dried herb to a pint of water; steeped for 8 hours)

Leaves (28 g of dried herb to a quart of water; steeped from 4 to 10 hours)

Flowers (28 g of dried herb to a quart of water; steeped 20 minutes to 2 hours)

Seeds and Berries (28 g of dried herb to a pint of water; steeped for 30 minutes)

*(If using fresh herbs, use 2*28 g)*

Cap the jar while steeping. Nourishing Infusions can be consumed throughout the next day, rather than making them in the morning and having to wait up to 10 hours to drink some. Discard any leftovers after one day.



Herbal preparations

Decoctions (for dried or fresh roots, barks, berries or seeds)

For a more concentrated preparation, add 28 g of herbs to a quart of water. Slowly bring to a boil, and reduce volume by about half. Strain, cool and drink. Not a good choice for aromatic roots and barks.

Cold Infusions

Some herbs are impaired or otherwise rendered inferior by heat, and should be prepared as a cold infusion: suspend the herb via a strainer or piece of muslin in cool to cold water, and allow to soak for several hours (proportions really do depend on the herb). Wild Cherry bark needs to be prepared by cold infusion.

Steam Inhalations

Steam inhalations are great for breaking up sinus or lung congestion. Simply fill a pot with water and, say, Sage, cover and bring to a boil. Remove the pot from heat, and lean over it with a towel over your head to catch the steam. Inhale slowly and fully.

Infused Oils

Solar Infusions: Pack a mason jar as tightly as possible with a fresh herb of your choice. Pour Olive Oil into the jar and then press the herbs with a clean spoon or something to squeeze out *as much of the trapped air as possible*. Repeat until you can't get any more air bubbles out, then cap the jar and set it directly in the sun for a month or two. Then strain the oil through cotton or cheesecloth, squeezing as much from the wet herb as possible. Let the strained oil sit for two or three days. Any water in your oil will settle to the bottom. Slowly pour the oil into a clean jar being careful not let any of the settled water come along with it. Cap and store in a cool, dark place.

"Kitchen" Infusions: Combine dried or fresh herbs and Olive Oil in a crock-pot or double boiler. Use a ratio of 7*28 g oil to every 28 g of dried or 2*28 g of fresh herb. Heat over the lowest heat possible for several hours - the longer the better. Strain into clean mason jars, and if using fresh herbs, separate the oil from any water as described above.

Salves

Infuse salve ingredients in oil as described above. Heat the oil, and to every 28 g of oil add 1-2 teaspoons of grated beeswax. You can drop some of the molten salve onto a piece of wax paper and let it harden to check the consistency. If too soft, add more beeswax; if too hard, add more oil. When you're happy with the consistency, pour into clean jars.



Herbal preparations

Liniments

In a mason jar, pour rubbing alcohol over the desired herbs. For Dry herbs, 5*28 g of alcohol per 28 g herbs; for fresh herbs, 2*28 g of alcohol per 28 g. Let sit for two weeks, shaking daily, then strain into clean bottles. Because liniments use rubbing alcohol, make sure they are labeled "FOR EXTERNAL USE ONLY!" Rubbing alcohol can be fatal if taken internally.

Poultices

This is an external application of bruised fresh or brewed dried herbs. For example, bruise a handful of fresh plantain leaves (or chew them to make a "spit poultice" for greater bio-activity) and apply to a wound to facilitate cleaning and faster healing. For a dried poultice, steep some dried chamomile and apply to raw, enflamed skin. Tea bags make very good poultices. Cover and let it soak in for ½ to a few hours, or overnight.

Tinctures

On the most basic level, a tincture is made from a fresh or dried herb that has been soaked in an alcohol/water solution (called a "menstrum").

