

Good afternoon to everyone 😊

My name is Lejsa Jakupović. I am a pharmacist and a research assistant at Department of Pharmacognosy, at Faculty of Pharmacy and Biochemistry.

First, I would like to thank Mr. Raj Kumar Srivastara, the Ambassador of India to the Republic of Croatia and Embassy of India for the invitation to the 1st International Ayurveda and Yoga Conference as the speaker.

As I represent my Department of Pharmacognosy, where we study and investigate the therapeutic effects of the herbs. We prepared short lecture/workshop about Croatian herbs which are known in Ayurveda and how those herbs can be prepared and used in herbal preparation.

INTRODUCTION:

Before I start with the main topic, herbs, and herbal preparations, I'll shortly talk about respiratory infections. Just as the reminder of the causes and symptoms of the respiratory infection.

Nowadays, especially in the winter, respiratory infections are very popular and with the latest pandemic (COVID-19), the whole world become more aware of taking care for the health and how they will heal some condition.

So, respiratory infections are infections of the parts of the body involved in breathing, such as the sinuses, throat, airways, or lungs. Mostly infections are caused by viruses and bacteria when the immune system fails. Symptoms of RI are usually cough, sore throat, rhinitis, sneezing, headaches, fever, breathlessness, and chest pain.

Most of those symptoms are very easy to treat with herbal preparations because bioactive compounds in herbs can be very effective against viruses and bacteria.

That's why, in some cases herbs and herbal preparations can be the first line in the treatment of symptoms of the mild respiratory infections.

CROATIAN HERBS AND AYURVEDA:

Ayurveda is alternative medicine system with historical roots in India. Therapies include herbal medicines, special diets, meditations, yoga, massages etc. Medicines are typically based on **herbal compounds** and minerals.

In Croatia, most of Croatian traditional medicines are wild herbs with therapeutical effects. Those herbs belong by its location to Mediterranean area and use of these herbal species can be also found in Ayurvedic prescriptions for treatments - such as **mild respiratory infection**.

In Croatia, plant family Lamiaceae is very well spread, especially on the South. Those species, from Lamiaceae family, have special ingredient - essential oil.

Essential oil is one of the most valuable compounds of the herb because it's protective and it has therapeutical effect. It's antibacterial, antiviral, and anti-inflammatory and it can protect the herb from insects and harsh environment. Extraction of the essential oil is not so simple. It's usually extracted by steam distillation and the amount and quality of the oil depends on content and location of the plant.

In Ayurveda's prescription for treating respiratory infections can be found herbs like Thyme, Oregano and Lavender.

Those three plants are very common in Croatia and in Croatia we also use them, especially thyme to treat sore throat or cough. Oregano has marvellous antimicrobe effect and Lavender has calming and relaxing effect.

BASIC INFORMATIONS ABOUT THOSE PLANTS:

1. **Thymus vulgaris** is small bush with small leaves and pink flowers located mostly at dry and sunny places in the rocky terrain. This gentle herb has strong and powerful effect in the treatment of respiratory infection because its essential oil is enriched with compounds which have antibacterial and antiviral effect. Thymus herb can be prepared as the syrup for sore throat, or its essential oil can be used as the massage oil for inhalation.
2. **Origanum vulgare** is another plant from *Lamiaceae* family, it's very similar to *Thymus vulgaris*. Its small bush with bigger oval leaves and red-pink flowers located mostly in the woods or meadows. Same as *Thymus vulgaris*, Origanum is enriched with essential oil which makes it very powerful herb with antimicrobe effect. The use of the dried herb Origanum is numerous – it can be used as syrup for cough. Oregano herb cures symptoms of sore throat, cough, and asthma. The Oregano's essential oil has powerful antibacterial, antiviral, and antifungal effect. It is usually used for oral use, diluted, and encapsulated. Taken as oral preparation, oregano helps with digestive problems. If it's wanted to be used as massage oil for inhalation, the essential oil should be diluted in base oil in proper ratio and applied on the chest.
3. **Lavandula angustifolia** is perennial short bush with many shoots, located in Mediterranean area in dry and sunny rocky terrain. When the Lavender is young, its leaves are hairy, long, and thin. Flowers are blue violet collected in small corollas. The intense smell of the plant comes from the essential oil that is located mostly in the flowers. The colour of essential oil is pale yellow and its easy to extract with steam distillation. After isolating the essential oil, it can be used for aromatherapy or topical use. The use of Lavender's essential oil is mostly for relaxing, but it has anti-inflammatory effect. The latest studies show it's antiviral effect, so that essential oil can be used in mixtures for respiratory infections for inhalation.

THE STEPS FROM THE HERB TO HERBAL PREPARATION:

The preparation of the herbs usually demands several steps before the extraction or preparing the product. Especially if we are interested in preparing it by ourselves and not buying the essential oil in the store.

So, in the beginning of our final herbal preparation:

- ✓ First, we need to **locate** the herb and find it in wildlife.
- ✓ After we find the herb, the herb should **be recognised and collected**.
- ✓ After collecting the herb, it **dries** few days in the dark and dry place at the room temperature. We collect herbs with its overground parts which are leaves, flowers and stem.
- ✓ After **harvesting and drying the plant**, we should **separate** the plant parts and use only parts we need for extraction.
- ✓ If we want to extract the essential oil, we use **steam distillation**.

Steam distillation is a very simple method where we boil the herb and evaporate the water that contains essential oil. The steam condenses and the water droplets enriched with the essential oil are collected in a tank. The whole process will be shown in the next slide as video presentation 😊

- ✓ After the essential oil is collected, we have the main ingredient for our simple herbal preparation – massage oil for inhalation and external use. The essential oil can sometimes irritate the skin, so it is recommended to be used diluted in base oil (almond, jojoba, sunflower oil).

For massage oil we need base oil and essential oil.

- ✓ In the mortar, first we pour the base oil, add few drops of the essential oil, mixture it until the essential oil is not combined with the base oil. In the end we transfer the massage oil from mortar to the container.
- ✓ **And the oil is ready for use.**
- ✓ It is usually applied on the chest for inhalation, several times per day during the flu or cold.
- ✓ By breathing, evaporated essential oil will entered in our body and treat the symptoms of the respiratory infection.

STEAM DISTILLATION OF LAVENDER FLOWERS TO EXTRACT ESSENTIAL OIL

On this slide is video presentation of the steam distillation of Lavender flowers made in our laboratory. We wanted to show how simple steam distillation looks like and to show all the steps from preparing the herb for distillation and in the end preparing the herbal preparation.

PRESCRIPTION FOR HOMEMADE MASSAGE OIL FOR MILD RESPIRATORY INFECTION

Here is the simple prescription to make very simple massage oil for inhalation.

CONCLUSION:

In the end, to conclude this session/workshop I just want to repeat important things from this lecture.

Preparation of homemade herbal product is always fun, but it is therapeutical too. So, it is necessary to know a lot about the herbs and its potential effect so that our herbal preparation is safe and can help us with our conditions.

❖ Thank you for your attention. I hope you enjoyed in this short lecture about herbs and the steps of its preparations.