



HERBAL TEAS USED FOR THE TREATMENT OF RESPIRATORY SYSTEM DISORDERS

Upper Respiratory Tracts Infections

- The most common diseases are asthma, allergic rhinitis, bronchitis, pharyngitis, laryngitis.
- These can cause cough, wheezing, abnormal breath and gas exchange.
- Infections spoil the mucociliary defence mechanisms which comprises the integration of the ciliated epithelium, periciliary fluid and mucus.
- Caused by mostly viruses, bacteria and rarely fungi

Instead of irrational antibiotic use;

- Medicinal (herbal) teas
- Essential oils
- Phytopharmaceuticals (due to their effects such as antimicrobial, antispasmodic, bronchospasmolytic, secretolytic, expectorant, antiinflammatory)
- Products which support the treatment

Medicinal/Herbal Teas

- Marshmallow, elder, fennel, licorice, eucalyptus, sage, primrose, chamomile, linden tea etc.

Frequently Used Phytotherapeutics for Respiratory System

- *Hedera helix*, English ivy
- *Glycyrrhiza glabra*, licorice
- *Tussilago farfara*, coltsfoot
- *Salvia triloba*, sage
- *Thymus* sp., thyme

Herbs with Supportive Effects

- *Echinacea purpurea*, Echinacea
- *Astragalus membranaceus*, Huang Qi
- *Malpighia punicifolia*, Acerola
- *Pelargonium sidoides*, African geranium

Herbal Teas Used Against Respiratory Tract Infections

- Antiseptic effect
- Antitussive/Expectorant effect
 - *Containing mucilage*
 - *Containing saponoside and triterpenic compounds*
 - *Containing essential oil*

Herbal Teas Possessing Antiseptic Effect

- *Eucalyptus globulus* (fever tree, gum tree)
 - *Infusion; (1.5 - 2 g dried leaves – 10-15 min.) 3 times a day*
 - *Inhalation; essential oil dropped in hot water*
 - *Eucalyptol: antiseptic*
 - *E. rostrata which naturally grows in Turkey does not comprise eucalyptol.*

Eucalyptus globulus

- Essential oil stimulates enzymes in charge of detoxification of liver, thus it may diminish the effect of other drugs and shorten the duration of activity.
- Internal use in case of severe liver diseases, gastrointestinal system and bile duct infections is not advised.
- External use of babies and children is not advised.

Hyssopus officinalis (Hyssop)

- Essential oil (thujone, pinocamphone)
- Marrubiin; expectorant
- Essential oil should be used cautiously and at low doses (2-3 drops) for children.
- Usage during pregnancy is not advised.

Origanum majorana (Marjoram)

- Leaves and flowering tops
- Infusion
- Essential oil (carvacrole, thymol, terpineol)
- Flavonoids
- Expectorant, antimicrobial
- Other species used; *O. vulgare*, *O. onites*, *O. dubium*, *O. heracleoticum*

Pinus sylvestris (Pine)

- Infusion prepared using buds, juvenile cones
- Essential oil (α -pinene, β -pinene)
- Respiratory tract antiseptic, expectorant

Salvia sp. (Sage)

- *S. triloba*
- *S. officinalis* doesn't grow naturally in Turkey.
- Leaves
- Infusion/decoction
- Essential oil (2-3%) (eucalyptol, camphora, thujone), flavonoids (luteolol, salvigenin), terpenic compounds
- Used for the treatment of wounds in mouth and throat, night sweating and cold

Salvia sp. (Sage)

- Max. 4-6 g dried drug daily
- Combined with drugs which contain essential oil including thymol and carvacrol
- Herbal materials which contain less than 5% thujone should be used because of the toxic effect of thujone.
- Shouldn't be used during pregnancy.

Herbal Teas Possessing Antitussive/Expectorant Effect

1. Containing mucilage

- Demulcent remedies – used for the treatment of dry cough
- Formation of a protective coating which shields the mucosal surface from irritants

Expectorant Herbs Containing Mucilage

- *Althea officinalis*
- *Malva silvestris*
- *Sambucus nigra*
- *Linum usitatissimum*
- *Tilia cordata*
- *Lichen islandicus*
- *Tussilago farfara*

Althea officinalis (Marshmallow)

- Roots, leaves (Radix/Folia Althae)
- Macerate prepared using roots; 10-15 g herbal drug with 150 ml water (90 min.), consumed warm during the day
- Infusion of leaves; 1-2 g herbal drug with 150 ml water (10 min.), consumed during the day
- Mucilage (35%), starch, pectin, tannin
- Leaves ... cough and bronchitis
- Roots ... oral and pharyngeal irritation

Malva sylvestris (Mallow)

- Dried flowers and leaves (Flos/Folia Malvae)
- Mucilage (6-10%), anthocyanins
- Decoction prepared using flowers; 1.5-2 g drug, strained after 10 min. of boiling (2-3 times a day)
- 150 ml water onto 3-5 g drug, left for 2-3 hours
- Cough, bronchitis, inflammation of mouth and pharynx

Tilia platyphyllos, *T. cordata* (Linden)

- Flowers (Flos Tiliae)
- Infusion/decoction (2 g drug), 2-4 g drug/day.
- Flavonoids, essential oil, mucilage
- Expectorant
- Diuretic, diaphoretic, sedative

Papaver rhoeas (Red Poppy)

- Petals
- Infusion (1 g drug/cup - 10 min.) 2-3 times a day
- Mucilage, alkaloid
- Antitussive, sedative
- As folk medicine, included in syrups used especially for children

Papaver rhoeas (Red Poppy)

- The effect of infusion is very mild.
- Generally utilized as syrup;
 - *Dried flowers* 100 g
 - *Boiled water* 500 g
 - *Sugar* 2000g

Verbascum thapsiforme, V. thapsus, V. phlomoides (Mullein)

- Herba/Flos Verbasci
- Mucilage (30%), saponoside, essential oil, iridoid
- Demulcent, expectorant
- Against irritation of respiratory and digestive tracts

Tussilago farfara (Colt's Foot)

- Inflorescences and leaves
- Mucilage (6-10%), inulin, tannin, flavonoids, pyrolizidine alkaloids (senecionine, senquirnine)
- Antitussive, antiinflammatory effect
- Used for the treatment of cough and bronchitis
- Against cough; 4.5-6 g drug daily or extract equivalent to this amount
- Combined with the drugs containing mucilage and saponin
- Pyrolizidine alkaloids (hepatotoxic, carcinogenic) can be taken less than 1 µg daily.
- Usage is not advised longer than 4-6 weeks and during pregnancy and lactation.

2. Herbs containing saponoside and triterpenic compounds

- Reduction of phlegm cumulated in airways by means of reducing its viscosity.

Saponin containing drugs

- Poorly absorbed from gastrointestinal tract
- Generally act as reflex expectorant
 - *Activation of an afferent mechanism upon contact with gastric or duodenal mucosa yields to a reflex stimulation of respiratory secretion.*
- May cause nausea and vomiting by stimulation of emetic centre at high doses.

Expectorant Herbs Containing Saponosides and Triterpenic Compounds

- *Marrubium vulgare* ... Marrubiin
- *Glechoma hederaceae* ... Marrubiin
- *Hedera helix*,
- *Glycyrrhiza glabra*,
- *Primula officinalis*,
- *Verbascum densiflorum*
 - Flavonoids, iridoids and coumarins existing in the content of these plants provide synergistic effect.

Marrubium vulgare (Horehound)

- Grows in West Anatolia and Mediterranean Region
- Infusion of finely cut aerial parts (1-2 g/200 ml - 10-15 min.) 2-4 times a day
 - *Marrubiin (diterpene lactone)*
 - *Saponoside*
 - *K salts*
- Bitter tonic, expectorant, antispasmodic

Ballota nigra (Black Horehound)

- Aerial parts
- Infusion (2-4 g/day), single dose
- Diterpenes (marrubiin, ballonigrin, ballotenol)
- Spasmolytic, expectorant

Grindelia robusta

- Origin is USA, doesn't grow in Turkey.
- Flowering tops
- Infusion
- Diterpenes, saponins
- Phenolic acids (p-OH benzoic ac., vanilic ac., coumarinic ac.) ... antiseptic
- Flavonoids (quercetol, quempherol derivatives) ... antispasmodic
- Bronchitis, asthma, emphysema, whooping cough

Inula helenium (Elecampane)

- Roots and rhizomes
- Infusion (1 g drug), single dose
- Expectorant effect, relief of bronchial spasms
- Sesquiterpene lactones in essential oil
- Caution about Compositae allergy

Primula officinalis (Cowslip)

- Infusion of flowers
- Decoction of rhizomes (0.2-0.5 g drug – 5 min.) 1 cup every 2-3 hours
- Saponins, flavonoides
- Expectorant, sedative, antispasmodic
- Increase bronchial excretion
- Stimulate epithelial cells
- Overdose may lead to gastric complaints and nausea.

Sambucus nigra (Elder Flower)

- Flowers
- Infusion (3-4 g/150 ml water, 5 min.)
- Dosage: 10-25 g drug or dried extract daily
- Essential oil (0.03-0.14%), flavonoids, polyphenols, mucilage, triterpenes, tannin
- Used as diaphoretic and to increase bronchial secretion in case of infections induced by influenza

Sambucus nigra (Elder Flower)

- Diuretic
- Effective against *Helicobacter pylori*
- Emetic at high doses
- In EU countries;
 - *Used in forms of herbal tea, dragee and drops*
 - *Used at the beginning of influenza infections*

Glycyrrhiza glabra (Licorice)

- Roots and rhizomes
- Infusion (3-4.5 g drug/150 ml water), steeped for 10-15 min.
- Decoction (1-2 g drug/150-200 ml water, boiled, simmered 10-15 min.)
- Saponosides (K and Ca salts of glycyrrhizin and glycyrrhetic acid) ... mucolytic, secretolytic and expectorant effects
- Flavonoids
- Dosage;
 - *5-10 g dried drug (equivalent to 200-800 g glycyrrhizin)*
 - *Extract; 3 mg/kg daily*

Glycyrrhiza glabra (Licorice)

- *Succus Liquiritiae*; 0.5 g against upper respiratory tract disorders
1.5-3 g against gastric and duodenal ulcer
- Saponosides act in synergism with flavonoid for antiulcer/antiinflammatory effect and to increase the viscosity of gastric mucosa
- Antiviral activity; inhibition of protein kinase C
- Used for the treatment of cough and hoarseness
- Cultivated throughout the world

Glycyrrhiza glabra (Licorice)

- Disrupt Na-K balance at high doses due to its saponoside content
 - *Elimination rate of K increases*
 - *Na concentration and water content increase, diuresis decreases and blood pressure goes up, edema occurs.*
- Sensitivity to *Digitalis* preparations due to K loss
- K-rich diet (banana, dried apricot, potato etc.) should be followed during the treatment with licorice.
- Usage is not advised for pregnant and patients who are suffering from kidney/liver disorders, hypertension, K deficiency and using corticoids.
- Not to be used more than 6 weeks

Polygala senega (Snakeroot)

- *Poligala senega* (USA, Canada), *P. amara* (Marmara Region), *P. anatolica* (East Anatolia), *P. vulgaris* (East Anatolia)
- Roots
- Decoction (0.5 g drug/150 ml water) max. 3 g drug/day
- Saponoside (major cons. senegin) (5-10%), salicylic acid, sterol, lipid
- Senegin (polygalic ac.); irritant to GI mucosa, causes reflex secretion of mucus in bronchioles. Also directly reduces the viscosity of thickened bronchial secretion
- Expectorant, diaphoretic, emetic
- Used for chronic bronchitis, asthma, pharyngitis
- Nausea and vomiting, exacerbation of existing GI inflammation at high doses

Hedera helix (Ivy)

- Leaves
- Infusion (6 g/1 L water, 10 min.) 1 cup 3-4 times a day
- Saponins (5-8%), alkaloids, flavonoids, coumarins
- Used for symptomatic treatment of cough, to treat acute benign bronchial disease
- Frequent use may cause allergic reactions and nausea (mainly due to falcarinol and its derivatives).

3. Herbs containing essential oil

- Generally exhibit the activity as direct-acting expectorants
 - *Well absorbed*
 - *Partially excreted via lung and stimulate the serous glandular cells and ciliated epithelium*

- Anise
- Pine
- Thyme
- Eucalyptus

Essential Oils

- Antimicrobial activity
- Antispasmodic effect
- Antioxidant effect
- Antiseptic effect
 - *Included in the content of nasal drops, inhalation products, products for steam inhalation, pastilles, mouthwashes, antitussive products, tablets, capsules and syrups*

Effects of Essential Oils

- Menthol: antiseptic effect on respiratory tract, stomachic, local anesthetic, effective on headache
- Eucalyptol: antiseptic effect on respiratory tract
- Citral: sedative effect on central nervous system, antiviral (*Melissa officinalis* ointments against *Herpes simplex*)

Thymus sp. (Thyme)

- *Thymus vulgare* ... Does not grow in Turkey
- *Origanum*, *Satureja*, *Thymbra*, *Corydothymus* sp. are also known as thyme in Turkey.
- *Thymus serpyllium*
 - Flowering tops
 - Infusion
 - Essential oil (thymol, carvacrol)
 - Antiseptic, antibacterial, antiviral, expectorant

Thymus sp. (Thyme)

- Essential oil
- Flavonoids
- Terpenic compounds
- Thyme to be used with medicinal purpose must contain 1-2% essential oil, min. 20% total phenolic compounds (thymol, carvacrol).
- Thyme growing in Turkey: 2-7% essential oil, 85% carvacrol
- Thymol ... secretolytic, bronchospasmolytic

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- Herba Thymi 20p
 - Fl. Matricariae 20p
 - Fl. Salviae 20p
-
- 3-4 times a day as infusion or mouthwash
 - Sore throat, feverish cold, tonsillitis

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- F. Salviae 25p
- Fl. Matricariae 25p

- Gingivitis and inflammations in upper respiratory tract
- Infusion or mouthwash

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- Fl. Sambuci 20p
 - Fl. Malvae 20p
 - Fr. Rosae caninae 15p
-
- Slight inflammations in upper respiratory tract and hoarseness

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- Fl. Malvae 10p
 - Fl. Matricariae 10p
 - Fr. Foeniculi 10p
 - F. Eucalyptii 10p
-
- Sore throat and as antiseptic for mouth sore

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- F. Menthae 10p
 - Fl. Sambuci 10p
 - H. Thymi 5p
-
- Cold and sore throat

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- F. Eucalyptii 10p
- Fl. Malvae 10p
- Fr. Foeniculi 10p

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- Fl. Tiliae 10p
- Fl. Sambuci 10p
- Fl. Rosae caninae 30p

- May be used for children

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- Fr. Rosae caninae 30p
 - Fl. Tiliae 10p
 - F. Melissa 10p
 - Fl. Matricariae 10p
-
- Cold with fever and inflammation

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- Fl. Tiliae 10p
- Fl. Sambuci 10p
- F. Melissa 10p
- Fr. Rosa caninae 10p
- Fl. Hibisci 5p
- Fr. Foeniculi 5p

- Winter tea, protective

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- R. Althae 40p
 - R. Liquiritae 10p
 - F. Farfarae 20p
 - Fl. Verbasci 10p
 - Fr. Anisi 10p
-
- Inflammatory respiratory tract disorders, productive cough

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- H. Thymi 20p
 - R. Primulae 10p
 - F. Farfarae 10p
 - Fl. Verbasci 10p
-
- Respiratory tract inflammation, acute bronchitis

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- H. Thymi 20p
- Fl. Sambuci 20p
- Fr. Foeniculi 10p
- Fr. Anisi 5p

- Cough

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- Fl. Malvae 40p
 - R. Primulae 20p
 - F. Melissae 20p
 - Fl. Crataegi 20p
-
- As expectorant for the patients suffering from asthma, chronic bronchitis, emphysema

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- Marshmallow 25
 - Aniseed 10
 - Iceland moss 10
 - Plantago 15
 - Licorice 10
 - Thyme 30
-
- 1-3 g /150 ml water
 - Antitussive

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

- Marshmallow root 40
- Marshmallow leaves 20
- Licorice 15
- Verbascum 10
- Primula 5
- Aniseed 10

- Expectorant

Herbal Tea Receipts Used for the Treatment of Respiratory Tract Disorders

■ Aniseed	10
■ Plantago	25
■ Licorice	25
■ Thyme	20
■ Marshmallow	5
■ Mallow	5
■ Bronchitis	