

# Natural Products for the Prevention and Treatment of Common Cold and Viral Respiratory Infections

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## 1. Other medicinal plants with EMA monography with potential effects on common cold

### 1.1 *Foeniculum vulgare* Miller subsp. *vulgare* var. *vulgare*

According to the EMA, the herb *Foeniculum vulgare* Miller subsp. *vulgare* var. *vulgare* is used as an expectorant in coughs associated with colds. The expectorant effect of this plant is essentially due to its composition. Indeed, the two main components anethole and estragole are recognized by their traditional use of cough associated with colds [131].

### 1.2 *Matricaria recutita* L.

Is known to treat cough and bronchitis, fever, colds, inflammation and infection [132]. As in the case of the plant *Glycyrrhiza*, it has been used in the mixed herb ASMATUSTM to relieve the symptoms of colds in asthmatic children [76].

### 1.3 *Polygonium aviculare* L. / *Polypodium vulgare* L.

The Committee on Herbal Medicinal Products and EMA reported that *Polygonium aviculare* L. can be used for the relief of symptoms of a

common cold, and for treating symptoms of minor mouth or throat inflammation [133].

#### 1.4 *Salix purpurea* L. / *Salix daphnoides* Vill. / *Salix fragilis* L.

The Committee on Herbal Medicinal Products and EMA reported that the traditional herbal *Salix purpurea* L. / *Salix daphnoides* Vill. / *Salix fragilis* L. product used for the relief of fever associated with the common cold [134].

**Table S1.** Herbal combinations used in the treatment of the common cold.

<b>Plant</b>	<b>Family</b>	<b>Infection</b>	<b>References</b>
<i>Allium sativum</i> L.	Amaryllidaceae	Common cold; COVID19; Rhinoviruses.	[48-50]
<i>Echinacea purpurea</i> <i>Echinacea angustifolia</i>	Asteraceae	Common cold; Coronavirus 229E and SARS- CoV-2; Rhinovirus colds.	[51-61]
<i>Eucalyptus globulus</i> Labill.	Myrtaceae	Acute respiratory infection.	[62-69]
<i>Grindelia robusta</i> Nutt			[15]
<i>Grindelia squarrosa</i> (Pursh) Dunal	Asteraceae	Acute respiratory infection.	[70-72]
<i>Grindelia humilis</i> Hook. et Arn.			
<i>Grindelia camporum</i> Greene			

<i>Glycyrrhiza glabra</i> L.			
<i>Glycyrrhiza inflata</i>			upper respiratory [73-76]
<b>Bat.</b>	Fabaceae		infections; common colds.
<i>Glycyrrhiza uralensis</i>			
<b>Fisch</b>			
<i>Mentha × piperita</i> L.	Lamiaceae		common colds; [77-82] respiratory syncytial virus (RSV).
<i>Origanum dictamnus</i> L.	Lamiaceae		Upper [82-84] respiratory infections.
<i>Pelargonium sidoides</i> DC			Common cold; [85-90] Acute
<i>Pelargonium reniforme</i>	Geraniaceae		respiratory tract infections.
<b>Curt.</b>			
<i>Pimpinella anisum</i> L.	Apiaceae		Expectorant; [91,92] Common cold.
<i>Primula elatior</i>	Primulaceae		[93-96]
<b>(L.) Hill</b>		Antitussive	
<i>Primula veris</i> L.			

<i>Sambucus nigra</i>	Adoxaceae	Common cold and influenza (A and B).	[97-102]
<i>Sideritis scardica</i> Griseb.	Lamiaceae	Bronchitis; bronchial asthma; common colds.	[103-105]
<i>Sideritis clandestina</i> (Bory & Chaub.) Hayek./ <i>Sideritis raeseri</i> Boiss./ & Heldr.			
<i>Sideritis syriaca</i> L.			
<i>Thymus vulgaris</i> L., <i>Thymus zygis</i> L.	Lamiaceae	Antitussive; common cold; Human rhinovirus.	[17][22] [106-124]
<i>Tilia cordata</i> Miller	Tiliaceae	Common cold.	[125]
<i>Tilia platyphyllos</i> Scop.			
<i>Tilia × vulgaris</i> Heyne			
<i>Verbascum thapsum</i> L.	Scrophulariaceae	Common colds; coughs; Asthma; Bronchitis	[126-130]
<i>Verbascum densiflorum</i> Bertol.			

*Verbascum phlomoides* L.

<i>Foeniculum vulgare</i> Miller subsp. <i>vulgare</i> var. <i>vulgare</i>	Apiaceae	Expectorant.	[131]
<i>Matricaria recutita</i> L.	Asteraceae	Antitussive; Bronchitis; Fever; Colds.	[76][132]
<i>Polygonium aviculare</i> L. <i>Polypodium vulgare</i> L.	Polygonaceae	Common colds.	[133]
<i>Salix purpurea</i> L. <i>Salix daphnoides</i> Vill. <i>Salix fragilis</i> L.	Salicaceae	Common colds.	[134]
<i>Aloe arborescens</i>	Asphodelaceae		[135-137]

		Upper respiratory tract infections; Human rhinovirus B (HRV14), influenza A virus (H1N1) and (H3N2), influenza B, respiratory syncytial virus (RSV), parainfluenza type 3 virus (Para 3).	
<i>Boehmeria jamaicensis</i>	Urticaceae	Common colds.	[138]
<i>Camellia sinensis</i> (L.) Kuntze <i>Camellia assamica</i> var. <i>kucha</i>	Theaceae	Anti-Influenza viral adsorption and suppressed replication; Cold viruses; Common cold.	[139-140]
<i>Cistus × incanus</i> L.	Cistaceae	Common colds; upper respiratory tract; Anti-Influenza.	[141-146]
<i>Cinnamomum cassia</i>	Lauraceae	Common cold; Chronic bronchitis;	[147]

		Human respiratory syncytial virus.	
<i>Larix decidua</i> Mill.	Pinaceae	Common cold.	[148-150]
<i>Paeonia lactiflora</i>	Fabaceae	Rhinoviruses.	[151,152]
<b>Herbal combination Plants</b>	<b>Family</b>	<b>Infection.</b>	<b>References</b>
<i>Hedera helix/ Primula vulgaris/Thymus vulgaris</i>	Araliaceae/ Primulaceae/ Lamiaceae	Common cold. Acute bronchitis.	[21-23][117,118][153]
<b>Tsumura bakumondoto:</b>		Common cold.	[154]
<b>Ophiopogon tuber</b> ( <i>Ophiopogon japonicus</i> )	Asparagaceae		
<b>Brown rice</b> ( <i>Oryza sativa</i> )	Poaceae		
<b>Pinellia tuber</b> ( <i>Pinellia ternata</i> )	Araceae		
<b>Jujube</b> ( <i>Ziziphus jujuba</i> )	Rhamnaceae Fabaceae		
Liquiritiae radix ( <i>Glycyrrhiza lepidota</i> )	Araliaceae		
<b>Ginseng radix</b>			

*(Panax ginseng)*

<b>Gelo Myrtol®</b>	Myrtaceae	Common cold.	[155] [156]
<b>eucalyptus</b> <i>(Eucalyptus grandis)</i>	Rutaceae		
<b>sweet orange</b> <i>(Citrus sinensis (L.) Osbeck)</i>	Myrtaceae		
<b>myrtle</b> <i>(Myrtus communis)</i>	Rutaceae		
<b>lemon</b> <i>(Citrus limon)</i>			
<b>Soshiho-tang:</b> <b>(Oriental herbal formulain</b> <b>East Asian countries)</b>		Common cold;	[157][158]
	Umbelliferae	(chills and fever)	
<b>Bupleuri Radix</b> <i>(Bupleurum</i> <i>falcatum</i> Linne)	Araceae	Pulmonary	
<b>Pinelliae Tuber</b> <i>(Pinellia</i> <i>ternate</i> Breitenbach)	Zingiberaceae	disease.	
<b>Zingiberis Rhizoma</b> <b>Crudus</b> <i>(Zingiber officinale</i> Roscoe)			
<b>Scutellariae Radix</b> <i>(Scutellaria</i> <i>baicalensis</i> Georgi)	Labiatae		
<b>Ginseng Radix (Panax</b> <b>ginseng C.A.Meyer)</b>	Araliaceae		
<b>Glycyrrhizae Radix et</b> <b>Rhizoma</b> <i>(Glycyrrhiza</i> <i>uralensis</i> Fischer)	Leguminosae		
<b>Zizyphi Fructus</b>	Rhamnaceae		



(*Zizyphus jujube* Miller  
var. *inermis* Rehder)

**Kan Jang**®  
*Justicia adhatoda* L. leaf,  
*Echinacea purpurea* (L.)  
Moench root,  
and *Eleutherococcus*  
*senticosus* (Rupr. &  
Maxim.) Harms root.

Acanthaceae      Respiratory tract [159]  
infection.

**So-cheong-ryong-tang:**      Araceae      Common cold.      [160]

**Pinelliae tuber** (tuber  
of *Pinellia ternata*),  
**Ephedrae herba** (stem  
of *Ephedra sinica*),  
**Schizandrae fructus** (fruit  
of *Schisandra chinensis*),  
**Paeoniae radix** (root  
of *Paeonia lactiflora*),  
**Glycyrrhizae radix** (root  
of *Glycyrrhiza uralensis*),  
**Zingiberis Siccatum**  
rhizoma (scalded rhizome)

Ephedraceae  
Schisandraceae  
Ranunculaceae  
Fabaceae  
Zingiberaceae  
Aristolochiaceae

of <i>Zingiber officinale</i> ), Asiasari radix (root of <i>Asiasarum</i> <i>heterotropoides var.</i> <i>mandshuricum</i> ), and Cinnamomi cortex (bark of <i>Cinnamomum cassia</i> )	Lauraceae
Yeon-gyo-pae-dok-san: Forsythiae fructus (fruit of <i>Forsythia viridissima</i> ), Lonicerae flos (flower of <i>Lonicera japonica</i> ), Schizonepetae spica (peduncle of <i>Schizonepeta</i> <i>tenuifolia</i> ), <i>Ledebouriellae</i> radix (root of <i>Ledebouriella</i> <i>divaricata</i> ), <i>Bupleuri</i> radix (root of <i>Bupleurum</i> <i>falcatum</i> ), <i>Angenlicae</i> <i>Decursivae</i> radix (root of <i>Angelica decursiva</i> ), <i>Osterici</i> radix (root of <i>Ostericum koreanum</i> ), <i>Araliae Continentalis</i> radix (root of <i>Aralia</i> <i>continentalis</i> ), <i>Aurantii</i> fructus (fruit of <i>Citrus</i> <i>aurantum</i> ), <i>Platycodonis</i> radix (root of <i>Planticodon</i> <i>grandiflorum</i> ), <i>Cnidii</i> rhizoma (rhizome of <i>Cnidium officianale</i> ), <i>Poria sclerotium</i> (sclerotia of <i>Poria</i> ), <i>Menthae herba</i> (stem of <i>Mentha arvensis</i> ), <i>Glycyrrhizae</i> radix (root of <i>Glycyrrhiza uralensis</i> ), and <i>Zingiberis rhizoma</i> <i>crudus</i> (raw rhizome of <i>Zingiber officinale</i> )	Oleaceae Caprifoliaceae Labiatae Umbelliferae Mentheae Apiaceae Araliaceae Rutaceae Apiaceae Polyporaceae Lamiaceae Leguminosae Zingiberaceae

<i>Radix echinaceae</i> ,	Asteraceae	Acute viral respiratory tract infection.	[24][161]
<i>Radix baptisiae</i> ,	Fabaceae		
<i>Herba thujae</i> .	cypress		

<b>Ma-xing-shi-gan-tang:</b>	Ephedraceae	Common cold;	[162]
<i>Ephedrae herba</i> (ma	Rosaceae	Fever;	
<b>huang),</b> <i>Armeniacae</i>	Fabaceae	Influenza virus	
<i>amarum semen</i> (ku-xing-		infections.	
<b>ren),</b> <i>Glycyrrhizae radix</i>			
<i>preparata</i> (gan-cao;			
<b>licorice),</b> and <i>Gypsum</i>			
<i>fibrosum</i> (shi-gao; calcium			
<b>sulfate)</b>			

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