

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.

Plant	Family	Infection	References
<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	Asteraceae	Acute respiratory infection.	[15]
<i>Grindelia squarrosa</i> (Pursh)			[70-72]
Dunal			
<i>Grindelia humilis</i> Hook. et Arn.			
<i>Grindelia camporum</i> Greene			

Glycyrrhiza glabra L.

Glycyrrhiza inflata

Bat.

Fabaceae

upper
respiratory
infections;
common colds.

[73-76]

Glycyrrhiza uralensis

Fisch

Mentha × piperita L.

Lamiaceae

common colds;
respiratory
syncytial virus
(RSV).

[77-82]

Origanum dictamnus L.

Lamiaceae

Upper
respiratory
infections.

[82-84]

Pelargonium sidoides DC

Geraniaceae

Common cold;
Acute
respiratory
tract infections.

[85-90]

Pelargonium reniforme

Curt.

Pimpinella anisum L.

Apiaceae

Expectorant;
Common cold.

[91,92]

Primula elatior

Primulaceae

Antitussive

[93-96]

(L.) Hill

Primula veris 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</i> × <i>vulgaris</i> Heyne			
<i>Verbascum thapsus</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]
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<i>Matricaria recutita</i> L.	Asteraceae	Antitussive; Bronchitis; Fever; Colds.	[76][132]
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<i>Polygonium aviculare</i> L. <i>Polypodium vulgare</i> L.	Polygonaceae	Common colds.	[133]
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<i>Salix purpurea</i> L. <i>Salix daphnoides</i> Vill. <i>Salix fragilis</i> L.	Salicaceae	Common colds.	[134]
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<i>Aloe arborescens</i>	Asphodelaceae		[135-137]
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		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]
Herbal combination Plants	Family	Infection.	References
<i>Hedera helix/ Primula vulgaris/Thymus vulgaris</i>	Araliaceae/ Primulaceae/ Lamiaceae	Common cold. Acute bronchitis.	[21- 23][117,118][153]
Tsumura bakumondoto:		Common cold.	[154]
Ophiopogon tuber (<i>Ophiopogon japonicus</i>)	Asparagaceae		
Brown rice (<i>Oryza sativa</i>)	Poaceae		
Pinellia tuber (<i>Pinellia ternata</i>)	Araceae		
Jujube (<i>Ziziphus jujuba</i>)	Rhamnaceae Fabaceae		
Liquiritiae radix (<i>Glycyrrhiza lepidota</i>)			
Ginseng radix	Araliaceae		

(*Panax ginseng*)

Gelo Myrtol®	Myrtaceae	Common cold.	[155] [156]
eucalyptus (<i>Eucalyptus grandis</i>)	Rutaceae		
sweet orange (<i>Citrus sinensis</i> (L.) Osbeck)	Myrtaceae		
myrtle (<i>Myrtus communis</i>)	Rutaceae		
lemon (<i>Citrus limon</i>)			

Soshiho-tang: (Oriental herbal formulain East Asian countries)		Common cold; (chills and fever) Pulmonary disease.	[157][158]
Bupleuri Radix (<i>Bupleurum</i> <i>falcatum</i> Linne)	Umbelliferae		
Pinelliae Tuber (<i>Pinellia</i> <i>ternate</i> Breitenbach)	Araceae		
Zingiberis Rhizoma Crudus (<i>Zingiber officinale</i> Roscoe)	Zingiberaceae		
Scutellariae Radix (<i>Scutellaria</i> <i>baicalensis</i> Georgi)	Labiatae		
Ginseng Radix (Panax ginseng C.A.Meyer)	Araliaceae		
Glycyrrhizae Radix et Rhizoma (<i>Glycyrrhiza</i> <i>uralensis</i> Fischer)	Leguminosae		
Zizyphi Fructus	Rhamnaceae		

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

Kan Jang ® <i>Justicia adhatoda</i> L. leaf, <i>Echinacea purpurea</i> (L.) Moench root, and <i>Eleutherococcus</i> <i>senticosus</i> (Rupr. & Maxim.) Harms root.	Acanthaceae	Respiratory tract infection.	[159]
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So-cheong-ryong-tang:	Araceae	Common cold.	[160]
Pinelliae tuber (tuber of <i>Pinellia ternata</i>),	Ephedraceae		
Ephedrae herba (stem of <i>Ephedra sinica</i>),	Schisandraceae		
Schizandrae fructus (fruit of <i>Schisandra chinensis</i>),	Ranunculaceae		
Paeoniae radix (root of <i>Paeonia lactiflora</i>),	Fabaceae		
Glycyrrhizae radix (root of <i>Glycyrrhiza uralensis</i>),	Zingiberaceae		
Zingiberis Siccatum rhizoma (scalded rhizome)	Aristolochiaceae		

of <i>Zingiber officinale</i>), Asiasari radix (root of <i>Asiasarum</i> <i>heterotropoides</i> var. <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>), Ledebouriellae radix (root of <i>Ledebouriella</i> <i>divaricata</i>), Bupleuri radix (root of <i>Bupleurum</i> <i>falcatum</i>), Angenlicae Decursivae radix (root of <i>Angelica decursiva</i>), Osterici radix (root of <i>Ostericum koreanum</i>), Araliae Continentalis radix (root of <i>Aralia</i> <i>continentalis</i>), Aurantii fructus (fruit of <i>Citrus</i> <i>aurantum</i>), Platycodonis radix (root of <i>Planticodon</i> <i>grandiflorum</i>), Cnidii rhizoma (rhizome of <i>Cnidium officinale</i>), Poria sclerotium (sclerotia of <i>Poria</i>), Menthae herba (stem of <i>Mentha arvensis</i>), Glycyrrhizae radix (root of <i>Glycyrrhiza uralensis</i>), and Zingiberis rhizoma crudus (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	[24][161]
<i>Radix baptisiae</i> ,	Fabaceae	respiratory tract	
<i>Herba thujae</i> .	cypress	infection.	

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