

Lime Tree – *Tilia platyphyllos* Scop.

EMOLLIENT AND SOOTHING FOR
THE RESPIRATORY SYSTEM

RELIEF OF MILD SYMPTOMS OF
MENTAL STRESS AND SLEEP AID



1- Botanical information:

Tilia platyphyllos Scop. (Malvaceae) is a deciduous tree, growing to 20-40 m tall, native to Europe and western Asia. It is also known as Lime tree or Linden and it has a smooth, grey-brown bark and soft, even-grained wood also used for carving and musical instruments manufacture. Leaves are alternate, dark green, ovate to cordate (heart-shaped); the small, light yellow or creamy, sweet scented flowers are arranged in loose drooping clusters.

2- Parts used: dried inflorescence

3- Active constituents: Lime tree contains flavonoids (as kaempferol, quercetin, myricetin and their glycosides), caffeic, coumaric and chlorogenic acid, mucilage polysaccharides 3% (as arabinose, galactose, rhamnose, with lesser amounts of glucose, mannose, and xylose; galacturonic and glucuronic acids), tannins and essential oil 0.02-0.1% (as alkanes, phenolic alcohols and esters, and terpenes including citral, citronellal, citronellol, eugenol, limonene, nerol, α -pinene and terpineol (monoterpenes), and farnesol (sesquiterpene), amino acids (as Ala, Cys, Ile, Leu, Phe and Ser). There are also saponins and tocopherol (phytosterol). Moreover, *Tilia cordata* and *Tilia platyphyllos* contain relatively more condensed tannin than mucilage.

4- Galenic forms: dry extract standardized to contain 1% or 5% total flavonoids expressed as anhydrous Rutin.

5- Traditional uses, safety and warnings:

Lime inflorescence has diaphoretic, expectorant and antispastic properties and has been used in European folk medicine as a domestic remedy for a wide range of health problems, such as treatment of catarrhs of upper respiratory tract and cold associated with dry irritating cough, for feverish colds and flu-like symptoms (on account of its property to induce sweating) and sinusitis (it reduces nasal congestion); it has sedative properties for anxiety-related problems (such as gastritis or palpitations); for intestinal and menstrual cramps. The flavonoids seem responsible for the diaphoretic and antispasmodic properties. The volatile oil fraction seems associated with the sedative properties of linden flowers. The total flavonoids and phenolic acids have good free radical scavenger and anti-inflammatory activities. *Tilia* has been studied only *in vitro* and on animal models, nevertheless, the German Commission E has approved Lime flowers for the treatment of colds and the cough associated to them. Linden is considered safe when correctly administered; rare allergic reactions have been reported. *Tilia* may interact with diuretics. Scientific information about its safety during pregnancy and lactation are insufficient to support its use in these conditions. The recommended dosage of EPO Linden dry extract is 500mg-1,3g/die (dry extract standardized to contain 5% total flavonoids) and 1-2g/die (dry extract standardized to contain 1% total flavonoids) (literature data).