



P.T.G. Natural Protection

Multi-extract for Cough and Cold Remedies in granulated powder



An ally for respiratory well-being

The beneficial effects of the herbal blend have been demonstrated mainly *in vivo* and *in vitro*:

- Antioxidant
- Anti-inflammatory
- AntitussiveAntispasmodic
- Expectorant

A natural barrier against seasonal discomfort

Our blend of active ingredients paves the way for innovative medical devices to relieve Cough and Cold symptoms.

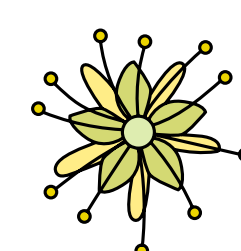
Barrier effect in vitro tested.

Suitable for medical device formulations targeted to:

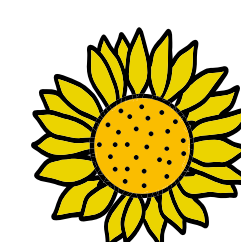
- **Dry Cough**
- **Productive Cough**



Plantago lanceolata



Tilia platyphyllos



Grindelia robusta

European origin Ingredients

Suitable for liquid and solid formulations:

- Syrup
- Spray
- Tablets

Suitable also for food supplement formulations targeted to respiratory tract well-being. Italian claims*:

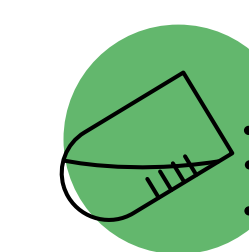
Plantago: Emollient and soothing (oropharyngeal mucosa) and tone of voice. Functionality of the first respiratory tract. Functionality of the mucous membranes of the respiratory tract.

Tilia: Functionality of the mucous membranes of the respiratory system. Nose and throat well-being.

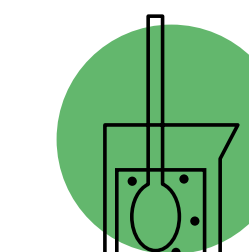
Grindelia: Emollient and soothing action (oropharyngeal mucosa) and tone of the voice. Functionality of the first respiratory tract.

Granulated Powder Features

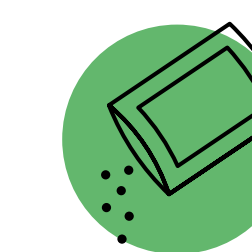
Granular extracts are characterised by an innate fluidity, ease of dissolution and high compressibility, which makes them particularly suitable for ensuring quality industrial preparations by bringing manufacturing lines to work at high performance. They are obtained through a special fluid bed granulation process (FFLG) to guarantee a perfect powder.



FLOWABLE



SOLUBLE



ELEGANT

- Cultivated entirely on European soil
- Controlled supply chain
- Suitable for vegans

Documented Quality

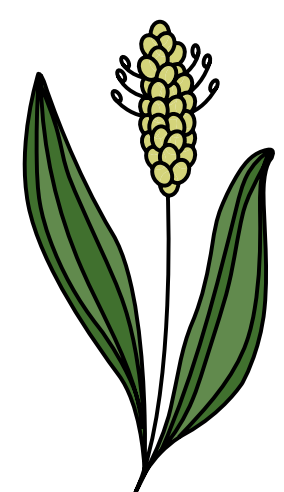
- Pesticides in accordance with Reg. CE 396/2005 and updated amendments.
- Residual solvents in accordance with Dir. CE 2009/32
- Total Aflatoxins <10 ppb in accordance with Reg. CE 915/2023
- Microbiological parameters controlled
- API in accordance with Reg. CE 915/2023
- Heavy metals in accordance with Reg. CE 915/2023 and Eur. Ph. 7th ed.
- Allergens-free in accordance with Reg. CE 1169/2001
- Not irradiated product Dir. 1992/2/CE, 1993/3/CE, Dlgs. 94 30/01/2001.

*Source: Annex 1 to the Ministerial Decree of 10 August 2018 on the regulation of the use in food supplements of Herbal Substances and Preparations as updated by Decree of 9 January 2019; Ministerial Reference Guidelines for physiological effects according to the model defined by the Council of Europe (Homeostasis, a model to distinguish between food, including food supplements, and medicinal products, 07/02/2008).



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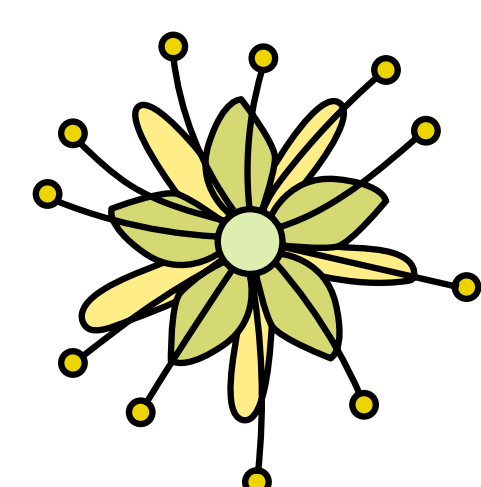
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***Plantago lanceolata* L.**

Plant part: leaf

Plantago lanceolata is a very common perennial plant that is widely represented in Europe and Asia. Traditionally, in several countries it is **used in combination with other botanical extracts** to treat **cold symptoms** and **inflammation** of the **mouth** and **throat**, due to its high content of **mucilage** (arabinose and galactose) and **flavonoids** (apigenin and luteolin). The latter, show marked **antioxidant** and **protective barrier effect**, both when administered by oral and oromucosal routes.



***Tilia platyphyllos* Scop.**

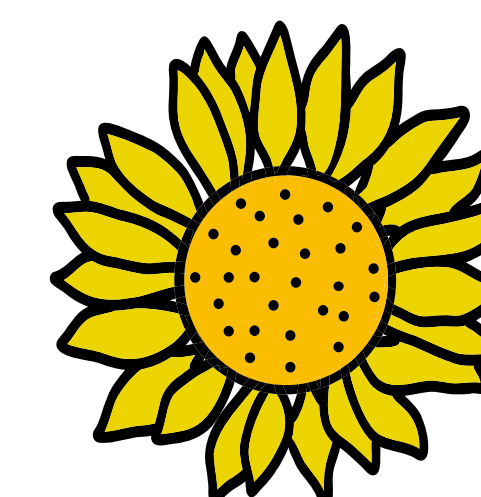
Plant part: flower

Linden trees originate in Europe and, more generally, in northern temperate regions. The drug consists of dried flowers.

Chemical constituents found in linden flowers include:

- **Flavonoids**
- **Mucilages**
- **Saponins**

to which sedative, antispasmodic, diaphoretic, emollient and antitussive properties are attributed, normally useful during common cold.



***Grindelia robusta* Nutt.**

Plant part: flowering top *Grindelia robusta* is a botanical native to western North America and Mexico, whose dried flowering tops are used. Commission E

supports the traditional use of grindelia for the **management of catarrh of the upper respiratory tract, the common cold, asthma, bronchitis, and whooping cough, and recognizes its antispasmodic and expectorant abilities.** All these activities are also supported by numerous scientific publications. The active ingredients that ensure the effectiveness of the plant are mainly resins, flavonoids and triterpene saponins.

In vitro tested performances

P.T.G. Natural Protection was *in vitro* tested on synthetic biomimetic buccal membrane (Sigma Aldrich) in order to demonstrate its barrier effect on the mucosa. Data reported allowed to evaluate and quantify the barrier effect of P.T.G. Natural Protection: the product has **good film forming ability** since it reduces the passage of caffeine of about 35%. This capacity to create a protective film on the oral mucosa, making it a remedy of choice for the formulation of medical devices.

- P.T.G. Natural Protection
- Positive control
vaseline impregnated membrane
- Negative control
"unprotected" membrane

