
Based on Article 16d(1), Article 16f and Article 16h of Directive 2001/83/EC as amended (traditional use)

<table>
<thead>
<tr>
<th>Herbal substance(s) (binomial scientific name of the plant, including plant part)</th>
<th><em>Grindelia robusta</em> Nutt., <em>Grindelia squarrosa</em> (Pursh) Dunal, <em>Grindelia humilis</em> Hook. et Arn., <em>Grindelia camporum</em> Greene, herba</th>
</tr>
</thead>
</table>
| Herbal preparation(s) | a) Comminuted herbal substance  
 b) Liquid extract (DER 1:1), extraction solvent ethanol 22.5% V/V  
 c) Tincture (ratio of herbal substance to extraction solvent 1:10), extraction solvent ethanol 60% V/V |
| Pharmaceutical forms | Herbal preparations in liquid dosage forms for oral use.  
 Comminuted herbal substance as herbal tea for oral use. |

Rapporteur

Note: This Assessment Report is published to support the release for public consultation of the draft Community herbal monograph on *Grindelia robusta* Nutt., *Grindelia squarrosa* (Pursh) Dunal, *Grindelia humilis* Hook. et Arn., *Grindelia camporum* Greene, herba. It should be noted that this document is a working document, not yet fully edited, and which shall be further developed after the release for consultation of the monograph. Interested parties are welcome to submit comments to the HMPC secretariat, which the Rapporteur and the MLWP will take into consideration but no 'overview of comments received during the public consultation' will be prepared in relation to the comments that will be received on this assessment report. The publication of this draft assessment report has been agreed to facilitate the understanding by interested parties of the assessment that has been carried out so far and led to the preparation of the draft monograph.
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1. Introduction

1.1. Description of the herbal substance(s), herbal preparation(s) or combinations thereof

- Herbal substance(s)

Grindeliae herba (gumweed herb) consists of the dried flowering tops of *Grindelia robusta* Nutt., *Grindelia squarrosa* Dunal, *Grindelia humilis* Hook. et Arn., *Grindelia camporum* Greene or a mixture of them (Pharmacopée Française 1998; ESCOP 2009).

In textbooks, the herbal substance is defined as follows:
- the dried aerial parts of *Grindelia camporum* Greene and other species of Grindelia gathered before the flowerheads expand (BHP 1976; Blaschek *et al.* 2006)
- the dried tops and leaves of *Grindelia robusta* Nutt., and/or *G. squarrosa* (Pursh) Dunal, gathered during flowering season (Blumenthal *et al.* 1998)
- the medicinal parts are the flowering branches and the dried leaves; the herbal substance consists of the dried tops and leaves of *Grindelia robusta* and/or *Grindelia squarrosa*, which are gathered during flowering season (Gruenwald *et al.* 2007).

The plants are native to western North America and Mexico, herbs which secrete sticky resin, especially from the yellow composite flowers (BHP 1976).

Description of the plant

The plant is an erect biennial or perennial herb or small bush that grows up to 1 m high, often branched above (Gruenwald *et al.* 2007).

Macroscopical description of the cut herb: Leaf fragments rigid and brittle, minutely reticulately pitted, some pieces showing a serrated margin, pale green or rose-brown. Some separate yellow ray florets about 10 mm long. Groups of yellow disc florets, about 5 mm long with bristly pappus hairs. Loose pappus hairs. Portions of flat, circular, pale green receptacles, pitted with floret scars on the upper surface, with a margin of curved, stiff, resin covered, lanceolate bracts. Many stem pieces, perhaps split, pithy, faintly longitudinally striated, smooth, very pale green. Slight balsamic odour (BHP 1976). The leaves break off easily when dry (Gruenwald *et al.* 2007).

Microscopical description of the cut herb: Covering trichomes of the leaf uniseriate, of about 4 to 7 short cells with a longer, narrow terminal cell. Glandular trichomes, few on the leaf and situated on the edges of the reticulations, many on the bracts around the receptacles, broadly ovoid masses, multicellular, sessile, about 35 to 85 μm long, containing minute rosettes of calcium oxalate about 4 μm in diameter. Leaf epidermis with polygonal, beaded anticlinal walls, containing scattered birefringent crystals in small rosettes and needles. Stomata anomocytic raised above the surface. Ray florets, terminating in an acute apex. Disc florets tubular with a five-lobed corolla and five protruding stamen filaments the ends of which are intensely birefringent. All florets containing many small birefringent crystals on the lower half; rosettes just above the ovary and prisms further up the corolla and around the ovary. Pappus hairs loose each about half the length of the disc florets and about 90-110 μm wide, with the marginal cells overlapping outwards. Pollen grains compositous, spherical, with spiny exine and 3 pores, about 30 μm in diameter (BHP 1976).

Acid-insoluble ash: Not more than 2% of the ash is insoluble in diluted hydrochloric acid.

Extractive: Not less than 20% is yielded to 90%.
The material complies with the monograph of the 'Pharmacopée Française' (1998).

Other names: August flower, California gum plant, Resin-weed, Scaly *Grindelia*, Tar weed

In Germany, the use of gumweed herb was approved by the Commission E (Blumenthal et al. 1998).

Chemical constituents according to existing references (Paris & Moyse 1971; BHP 1976; Madaus 1979; Duke 1985, Gruenwald et al. 2007; ESCOP 2009)

- resin (5-20% depending on the species) consisting mainly of diterpenic acids such as grindelic acid, 7-8-epoxygrindelic acid and 17-acetoxygrindelic acid; acetylenic compounds such as matricarianol and marticarianol acetate [Timmermann et al. 1987; Didry et al. 1982, Blaschek et al. 2006]

- flavonoids such as kaempferol-3-methyl ether and kaempferol-3,7-dimethyl ether and various quercetin-methyl ethers [Pinkas et al. 1978; Didry et al. 1982; Pharmacopée Française 1998; Krenn et al. 2009] and main compounds quercetin-3-methyl-ether and 6-OH-kaempferol-3,6-dimethyl ether

- triterpenoid saponins with grindelia sapogenin D, bayogenin and oleanolic acid as the sapogenins [Paris & Moyse 1971; Kreutzer et al. 1990; Pharmacopée Française 1998]

- phenolic acids such as chlorogenic, p-hydrobenzoic and p-coumaric acids [Pinkas et al. 1978; Didry et al. 1982]

- approximately 5% of tannins [Paris & Moyse 1971; Blaschek et al. 2006] and

- approximately 0.2% of essential oil consisting mainly of mono- and sesquiterpenes, and especially for *G. robusta* - borneol (15.2%) [Paris & Moyse 1971], alpha-pinene (10.3%), trans-pinocarveol (7%), bornyl acetate (4.5%), limonene (4.3%) [Blaschek et al. 2006; El-Shamy et al. 2000; Schäfer & Schimmer 2000; Fraternale et al. 2007]

- **Herbal preparation(s)**

  See section 2.2

  - Combinations of herbal substance(s) and/or herbal preparation(s) including a description of vitamin(s) and/or mineral(s) as ingredients of traditional combination herbal medicinal products assessed, where applicable.

There are some combinations registered/marketed in the European Union (EU).

The draft Community herbal monograph refers only to *Grindeliae herba*. 
1.2. *Information about products on the market in the Member States*

**Regulatory status overview**

<table>
<thead>
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<th>Regulatory Status</th>
<th>Comments</th>
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<td>Finland</td>
<td>MA TRAD Other TRAD Other Specify: No marketed products</td>
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<tr>
<td>France</td>
<td>MA TRAD Other TRAD Other Specify: Only combinations with <em>Erysimum</em></td>
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<td>Norway</td>
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<tr>
<td>Spain</td>
<td>MA TRAD Other TRAD Other Specify: One combination product (syrup) -formulation of 12 ingredients, containing <em>Grindelia</em> tincture.</td>
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<tr>
<td>Sweden</td>
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<td>United Kingdom</td>
<td>MA TRAD Other TRAD Other Specify: No marketed products</td>
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</table>
1.3. Search and assessment methodology

Search terms: Grindelia robusta Nutt., Grindelia squarrosa (Pursh) Dunal, Grindelia humilis Hook. et Arn., Grindelia camporum Greene herb, Gumweed herb, Grindeliae herba,
Databases: PubMed, Medline, HealLink, Scopus.
Libraries: University of Athens, Laboratory of Pharmacognosy and Chemistry of Natural Products of the University of Athens.

2. Historical data on medicinal use

2.1. Information on period of medicinal use in the Community

The genus name Grindelia derives from the name of the German botanist David Grindel (1766-1836) [Madaus 1979] and it has been utilised by Native Americans to treat bronchial problems as well as skin afflictions of all kinds, including allergic reactions to the poison ivy plant. The medicinal value of this plant was not recognised by the orthodox practitioners of medicine in the United States (US) till the middle of the 19th century - after which it came into prominence as a major medicinal plant. Official recognition of Grindelia came with the introduction of the herb in the Pharmacopoeia of the United States from 1882 to about 1926. Modern herbalists still prescribe the herb for the treatment of some types of disorders. Grindelia has also been used for a long time as a remedy for dermatitis caused by poison oak or poison ivy. The latter belongs to the genus of Toxicodendron and contains a sap called urushiol, which causes severe allergic reactions in case of contact with skin. Grindelia was used to provide relief in urushiol-induced contact dermatitis by the Native Americans and also in pharmaceutical medications in the early 1900’s. Grindelia was also used in combination herbal products of asthmatic conditions (such as Lobelia and the pill-bearing spurge - Euphorbia hirta syn. E. pilulifera). This combination remedy was claimed to be effective in dealing with asthmatic conditions [BHP 1976].

Herbal Use

The Commission E approved gumweed herb for catarrhs of the upper respiratory tract (Blumenthal et al. 1998). Grindeliae herba traditionally has been indicated for the treatment of upper respiratory catarrh, common colds, asthma, bronchitis, whooping cough, cystitis, and used for its action as antispasmodic, expectorant and cardiac depressant [BHP 1976; Duke 1985; ESCOP 2009].

It has been also used externally in lotion form in poison-ivy dermatitis, while it was used traditionally in combinations with Lobelia inflata and Glycyrrhiza glabra in asthma and bronchitis [BHP 1976] as well as with Gelsemium and Erysimum (information concerning the French market).

2.2. Information on traditional/current indications and specified substances/preparations

According to the data on the European market, there are no herbal medicinal products containing neither the herbal substance Grindeliae herba nor Grindeliae herba preparations as single active
substance in Europe. The herbal preparations (a), (b) and (c) were found in literature references, and the period of their medicinal use dates back to more than 30 years (Belgische Pharmacopee 5th Edition 1969; Paris & Moyse 1971; BHP 1976).

Therefore, for Grindeliae herba the requirement for a period of at least 30 years in medicinal use set out in Directive 2004/24/EC for qualification as a traditional herbal medicinal product is fulfilled. The evidence on traditional medicinal use is confirmed by a number of publications providing supporting information.

From the literature (BHP 1976; Blumenthal et al. 1998; Blaschek et al. 2006; Gruenwald et al. 2007, ESCOP 2009), the following herbal preparations have been identified:

- b) Liquid extract (DER 1:1), extraction solvent ethanol 22.5% V/V (Belgische Pharmacopee 5th Edition 1969; Paris & Moyse 1971; BHP 1976)
- c) Tincture (ratio of herbal substance to extraction solvent 1:10), extraction solvent ethanol 60% V/V (Belgische Pharmacopee 5th Edition 1969; Paris & Moyse 1971; BHP 1976)

Upon assessment of data on traditional and current indications (see section 2.1), the indication proposed for the Community herbal monograph is:

‘Traditional herbal medicinal product for relief of cough associated with cold’.

2.3. Specified strength/posology/route of administration/duration of use for relevant preparations and indications

Based on literature data and information from the Member States (France), the following posology and duration of use is proposed for the different herbal preparations (Belgische Pharmacopee 5th Edition 1969; Paris & Moyse 1971; BHP 1976):

**Posology**

*Adults and elderly*

a) Comminuted herbal substance

Single dose

Herbal tea: 2-3 g of the comminuted herbal substance in 150 ml of boiling water as a herbal infusion up to 3 times daily

b) Liquid extract: 1.8-3.6 ml daily

c) Tincture: 1.5-3 ml daily

The use in children and adolescents under 18 years of age is not recommended (see section 5.5.).

**Duration of use**

If the symptoms persist longer than 1 week during the use of the medicinal product, a doctor or a qualified health care practitioner should be consulted.
3. Non-Clinical Data

3.1. Overview of available pharmacological data regarding the herbal substance(s), herbal preparation(s) and relevant constituents thereof

In vitro experiments

Antibacterial ability

Ethanolic extracts and resin fractions [Blaschek et al. 2006; Pinkas et al. 1978], as well as a polyphenolic fraction and phenolic acids from Grindelia inhibited the growth of several bacterial strains, including Staphylococcus aureus and Bacillus subtilis. In all cases, no further details on the species used were given. No antibacterial ability was exhibited by isolated flavonoids or a saponin fraction [ESCOP 2009; Kreutzer et al. 1990].

Fungistatic activity

In the plate diffusion test concentrations of up to 10 mg/plate of a mixture of bisdesmosidic Grindelia saponins dose-dependently inhibited the growth of the fungi Candida tropicalis, Mucor mucedo, Trichoderma viride and Botrytis cinerea. In another experiment, the same mixture inhibited the growth of three of these fungi species with MIC values between 0.31 and 5 mg/plate (comparable to aescin) compared to 0.6 µg per plate for clotrimazole [ESCOP 2009].

The essential oil of Grindelia was also tested and it showed an inhibition of the growth of Penicillium expansum, Aspergillus flavus, Trichoderma viride, Pseudomonas spp., Monilia fructigena and Fusarium culmorum by 9-83% in comparison with the control (econazole, 100%) when applied for 6 days at 2 µl per plate and showed an inhibition by 71-83% at 30 µl per plate [ESCOP 2009].

Recently, the methanolic extract from Grindelia camporum showed significant activity against all target fungal species. The growth inhibitory effect was tested against six significant pathogenic and toxinogenic fungal species: Fusarium oxysporum, F. verticillioides, Penicillium expansum, P. brevicompactum, Aspergillus flavus and A. fumigatus. The most sensitive target fungus was the toxinogenic and human pathogenic species A. fumigatus. No further details on the concentrations were given [Zabka et al. 2011].

Antispasmodic activity

A fluid extract (1:1, ethanol 75%) and a polyphenolic fraction from Grindelia exhibited mild antispasmodic activity on contractions of isolated guinea pig ileum. ED$_{50}$ values for acetylcholine-, histamine-, serotonin- and bradykinin-induced contractions were respectively 150-200 µg/ml, 40 µg/ml, 10-50 µg/ml and 10-40 µg/ml for the fluid extract, and 150-200 µg/ml, 10-20 µg/ml, 10 µg/ml and 10 µg/ml for the polyphenolic fraction. However, the effect could not be confirmed in later research using a 50% V/V methanolic extract of Grindelia; no antispasmodic activity was observed on spontaneous or acetylcholine- or barium chloride-induced contractions of isolated guinea pig ileum at concentrations up to 800 µg/ml [ESCOP 2009; Izzo et al. 1996].

Antioxidant activity

The antioxidant activity of the essential oil obtained from Grindelia robusta aerial parts from central Italy was evaluated using the DPPH and 5-lipooxygenase tests [Fraternale et al. 2007].
Anti-inflammatory activity

*Grindelia* extracts of varying polarity have been tested in a neutrophil elastase assay. As observed earlier with various phenolic compounds, the extracts had a remarkable inhibitory effect (greater than 50%) at a concentration of 1 mg dried extract/0.5 ml, indicating anti-inflammatory potential. In the thrombin activity test, the IC₅₀ values of an acetone extract and a carbon dioxide extract were 330 and 500 µg/ml respectively [ESCOP 2009].

Plant extracts and/or secondary metabolites receive considerable attention as therapeutic agents for treating inflammatory diseases such as periodontitis, which affects the tooth supporting tissues. In a recent study, the effect of a *Grindelia robusta* extract enriched in saponins and polyphenols was investigated on *Aggregatibacter actinomycetemcomitans* lipopolysaccharide (LPS)-induced inflammatory mediator (IL-6, TNF-α, RANTES, MCP-1, PGE(2) ) and matrix metalloproteinase (MMP-1, -3, -7, -8, -9, -13) secretion of macrophages. LPS induced a marked increase in the secretion of all inflammatory mediators and MMPs tested by macrophages, as determined by enzyme-linked immunosorbent assays. At non-cytotoxic concentrations, the *G. robusta* extract inhibited dose-dependently the secretion of IL-6, RANTES, MCP-1 and, to a lesser extent, PGE(2) and TNF-α. Such inhibition was also observed for MMP-1, -3, -7, -8, -9 and -13 secretion. This ability of *G. robusta* extract to reduce the LPS-induced secretion of inflammatory mediators and MMPs was associated with a reduction of nuclear factor-kappa B (NF-κB) p65 activation. The results suggest that *G. robusta* extract possesses an anti-inflammatory therapeutic potential through its capacity to reduce the accumulation of inflammatory mediators and MMPs [La et al. 2010].

Methanolic extract of *Grindelia robusta* was evaluated for its anti-inflammatory activity, showing up to 4.5-fold inhibition of nitric oxide (NO) production in the J774 murine macrophage cells challenged with LPS without cytotoxicity. The extract significantly reduced the protein levels of inducible NO synthase (iNOS) and the cyclooxygenase-2 (COX-2) as observed by Western blot analysis. *G. robusta* extract significantly inhibited (by 50%) IL-1β and IL-12 secretions. Furthermore, the plant extract was shown to prevent the LPS-mediated nuclear translocation of NF-kB. All the above observations indicate the anti-inflammatory potential of the plant [Verma et al. 2010].

In vivo experiments

Anti-inflammatory activity

A *Grindelia robusta* dry extract (80% ethanol) orally administrated at 100 and 200 mg/kg body weight dose-dependently inhibited carrageenan-induced rat paw oedema by 41% (p<0.01) and 63% (p<0.001) respectively, compared to 45% inhibition by indomethacin at 5 mg/kg [Mascolo et al. 1987].

The anti-inflammatory activity of a *Grindelia* fluid extract (1:1, ethanol 75%) and a polyphenolic fraction was demonstrated in similar experiments. When administrated intraperitoneally at 65 mg/kg 30 minutes before carrageenan injection, the extract inhibited rat paw oedema by 53% compared to 24% by lysine acetylsalicylate at 100 mg/kg and 30% by rutin at 100 mg/kg [ESCOP 2009].

Expectorant activity

In an old study by Boyd et al. in 1946 [ESCOP 2009] on urethaneized cats, rabbits and guinea pigs, respiratory tract fluid (RTF) was collected from the trachea 3 hours before and 4 hours after gastric administration of a *Grindelia* fluid extract (conforming to ‘Normes Françaises NF 7’ 1942) at doses from 0.1 to 10 ml/kg body weight. The RTF output 2 hours after administration increased by 79% in cats while no effects was observed in rabbits or guinea pigs. Controls showed increases or decreases in RTF output of up to 30% over 4 hours.
Antispasmodic activity

A *Grindelia* fluid extract (1:1, ethanol 75%) and a polyphenol fraction showed no antispasmodic activity against histamine- or serotonin-induced bronchospasms at higher doses (close to the toxic dose) [Pinkas et al. 1978; ESCOP 2009].

Bioactivities of secondary metabolites from gumweed

**Anti-inflammatory activity**

The contribution of methylated exudate flavonoids (main compounds quercetin-3-methylether and 6-OH-kaempferol-3,6-dimethylether) to the anti-inflammatory activity of *Grindelia robusta*, was tested through an assay for their activity to inhibit neutrophil elastase. Quercetin-3-methylether was shown to be most active with an IC$_{50}$ of 19 µM, thus obviously contributing to the anti-inflammatory activity of this herbal drug [Krenn et al. 2009].

All these observations of such bioactivities help to account for some of the existing medical effects.

3.2. **Overview of available pharmacokinetic data regarding the herbal substance(s), herbal preparation(s) and relevant constituents thereof**

No data on gumweed herb preparations/extracts have been found or reported.

3.3. **Overview of available toxicological data regarding the herbal substance(s)/herbal preparation(s) and constituents thereof**

**Single-dose and repeated-dose toxicity studies**

No mortality occurred and no toxic effects were apparent in rats after a single oral dose of a *Grindelia robusta* dry extract (80% ethanol) at 2.5 g/kg body weight [Mascolo et al. 1997; ESCOP 2009].

Intraperitoneal LD$_{50}$ values in mice for a fluid extract and a polyphenolic fraction from *Grindelia* species were determined as 250 mg/kg and >500 mg/kg body weight, respectively [Pinkas et al. 1978; ESCOP 2009].

**Genotoxicity studies**

No genotoxicity studies carried out on gumweed herb can be found in the scientific literature.

**Carcinogenicity studies**

No carcinogenicity studies carried out on gumweed herb are available in the scientific literature.

**Reproductive and developmental toxicity studies**

No reproductive and developmental toxicity studies carried out on gumweed herb are available in the scientific literature.

The safety of gumweed herb during pregnancy and lactation has not been established. In accordance with general medical practice, the herbal medicinal products (herbal teas or finished products) should not be used during pregnancy and lactation.
3.4. **Overall conclusions on non-clinical data**

Grindeliales herba has officially been recognised at least since 1969 in the Belgische Pharmacopee 5th edition, by Paris & Moyse in 1971 and in 1976 in the BHP; it is still in the current edition of the French Pharmacopoeia (monograph last amended in 1998) as a herbal remedy traditionally used for the relief of catarrh of the upper respiratory tract. Gumweed herb is also approved by the German Commission E monograph (Blumenthal et al. 1998). It has been used as a traditional remedy without safety problems for more than 30 years.


The lack of genotoxicity, carcinogenicity as well as reproductive and developmental toxicity studies do not allow the establishment of a Community list entry.

4. **Clinical Data**

4.1. **Clinical Pharmacology**

4.1.1. **Overview of pharmacodynamic data regarding the herbal substance(s)/preparation(s) including data on relevant constituents**

No data available.

4.1.2. **Overview of pharmacokinetic data regarding the herbal substance(s)/preparation(s) including data on relevant constituents**

No data available.

4.2. **Clinical Efficacy**

4.2.1. **Dose response studies**

No data available.

4.2.2. **Clinical studies (case studies and clinical trials)**

Poison oak and related hypersensitivity dermatitis are age-related problems that have historically been treated with herbal medicines before the availability of corticosteroids. Few of these historical therapies have been rigorously investigated. *Grindelia* preparations were used in earlier times to treat exanthema caused by intoxication with *Rhus toxicodendron* (poison oak).

In a recent case study involving a woman suffering from poison oak dermatitis, application of a tincture (85% ethanol) from fresh flower buds of *Grindelia* spp. had an immediate effect, diminishing pruritus and decreasing transudation. The tincture mixed into a *calendula* cream base produced further relief [Canavan & Yarnell 2005].

There is a lack of clinical research, except the above-mentioned reference by Canavan & Yarnell 2005, assessing the effects of gumweed herb.
4.2.3. **Clinical studies in special populations (e.g. elderly and children)**

None reported.

4.3. **Overall conclusions on clinical pharmacology and efficacy**

Despite the absence of data from clinical studies, published literature and information on use of Grindeliales herba preparations in products marketed in the EU, the data on traditional use (efficacy is plausible on basis of long-standing use and experience) are considered sufficient.

5. **Clinical Safety/Pharmacovigilance**

5.1. **Overview of toxicological/safety data from clinical trials in humans**

There is a lack of clinical safety and toxicity data for gumweed herb from clinical trials and further investigation of these aspects is required.

5.2. **Patient exposure**

No data available.

5.3. **Adverse events and serious adverse events and deaths**

In sensitive persons, irritation of the gastric mucosa might occur [ESCOP 2009]. Side effects listed in older scientific literature include gastric irritation and diarrhoea [Gruenwald et al. 2007] as well as irritation of kidney and/or stomach at high doses [Duke 1985].

5.4. **Laboratory findings**

No data available.

5.5. **Safety in special populations and situations**

**Special patient populations**

No data on use in children and adolescents are available, therefore Grindeliales herba is intended only for use by adults and elderly.

**Use in pregnancy and lactation**

In the absence of data available and in accordance with general medical practice, it is recommended not to use herbal medicinal products containing gumweed herb and preparations thereof during pregnancy and lactation.

**Overdose**

No cases of overdose have been recovered in the scientific literature.

**Drug abuse**

No information in the literature.

**Effects on ability to drive and use machines**

No data in the literature.
5.6. **Overall conclusions on clinical safety**

Grindeliae herba is intended only for adults and elderly.

In the absence of sufficient data, the use during pregnancy and lactation is not recommended.

No adverse effects have been reported in the literature, pointing to the safety of *Grindelia* in case of therapeutic application. However, the lack of mono-component products on the market queries the significance of lack of reports of adverse events.

As there are no available data on genotoxicity, carcinogenicity and reproductive and developmental toxicity of gumweed herb extracts, it is not possible to establish a Community list entry.

6. **Overall conclusions**

The positive effects of gumweed herb on the relief of symptoms of common cold have been recognised empirically. This application is plausible only on the basis of the traditional use of the plant and the existing *in vitro* and *in vivo* pharmacological data. There is a lack of controlled clinical studies with preparations containing Grindeliae herba.

In conclusion, Grindeliae herba preparations can be used in traditional herbal medicinal products in the following indication:

‘Traditional herbal medicinal product for relief of cough associated with cold’.

In the absence of adequate data in other populations, Grindeliae herba is intended only for adults and elderly.

In the absence of sufficient data and in accordance with general medical practice, it is recommended not to use herbal medicinal products containing gumweed herb and preparations thereof during pregnancy and lactation.

No reports on adverse effects have been published, and this supports a safe use in the proposed traditional indication.

As there are no available data on genotoxicity, carcinogenicity and reproductive and developmental toxicity on gumweed herb extracts, it is not possible, because of safety concerns, to establish a Community list entry.

**Annex**

*List of references*