

A017 Re-evaluation studies on *Grindelia robusta* Nutt.*B. Gehrmann* and *M. F. Melzig*

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Grindelia robusta Nutt., gum weed, is native to Southwestern United States, Central America, and parts of South America. The herb of *Grindelia* has been used in traditional medicine as an expectorant and sedative (1). The Commission E monograph indicates catarrhs of the upper respiratory tract (2).

For extract preparation dried flowering tops and leaves of the herb were used applying solvents of different polarity. The extracts were tested for their polyphenolic compounds by a rapid TLC method utilizing the horizontal DESAGA H-chamber. The TLC conditions were optimized for the application to partly resinous *grindelia* herb extracts in order to provide a fast and efficient separation. Regarding the fact that *grindelia* herb is included in the German Homeopathic Pharmacopoeia (HAB) 2000, the homeopathic tincture of *Grindelia* herb additionally has been investigated.

Extracts containing phenolic compounds such as flavonoids and carbonic acids (e. g. chlorogenic acid, caffeic acid, vanillic acid, *p*-coumaric acid, ferulic acid) were further submitted to a neutrophil elastase assay an enzyme belonging to the chymotrypsin family of serine proteinases (S1) with a pH optimum close to neutrality (3). The extracts (1000 µg dried extract /500 µl) were tested on the enzymatic activity of neutrophil elastase showing a remarkable inhibitory effect higher than 50% indicating an anti-inflammatory potential. The different extracts were characterized by their inhibitory activity against human neutrophil elastase.

The results obtained offer a further step towards re-evaluation of herbal extracts from *G. robusta* Nutt., a traditional medicinal plant which has formerly been listed in both American and European pharmacopoeias.

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References: 1. Grieve, M. (1931, rev. ed. 1971/1996) *A Modern Herbal*, Barnes and Noble Inc., New York. 2. Anon. (1991) *BAnz* (Federal German Gazette) No. 11, ATC code: R07AX. 3. Melzig, M. F. et al. (2001) *Pharmazie* 56, 12, 967-970.

A018 The different anti-inflammatory activities of polymeric sub-fractions from *Symphytum asperum* and *S. caucasicum* might be related to differences in diferulate composition*C. Barthomeuf*^a, *V. Barbakadze*^b and *E. Kemertelidze*^b^a UMR-INSEEM U-484, Laboratoire de Pharmacognosie et Biotechnologies, Faculté de Pharmacie Pl. H. Dunant, 63001 Clermont-Fd, France, ^b Institute of Pharmacochemistry, Georgian Academy of Sciences, 380059 Tbilissi Georgia.

It was demonstrated that a water-soluble high molecular weight (> 1000 KDa) polymeric sub-fraction isolated from the roots of *Symphytum asperum* Lepech (Boraginaceae) (Sa-HWS) inhibits in a dose-dependent manner (i) the generation of superoxide anion (IC₅₀: 5 µg/ml) and (ii) the degranulation of azurophil granules in PMA-activated peritoneal rat leukocytes (IC₅₀: 41.7 µg/ml) and therefore, inhibits NADPH oxidase activation in primed leukocytes suggesting anti-inflammatory activity (1). The present study demonstrated that Sc-HWS, a similar sub-fraction isolated from the roots of *S. caucasicum* Bieb., (i) exhibits similar properties and (ii) despite a weaker activity (IC₅₀ for inhibition of superoxide generation: 13.7 µg/ml and IC₅₀ for inhibition of azurophil degranulation: more than 100 µg/ml), may participate, together with saponins, in the global activity of water-soluble extracts from *S. caucasicum* roots, traditionally used as anti-inflammatory agents. HPLC and GC-MS analysis argue for the presence of hydroxycinnamic acid derivatives in the two sub-fractions, at sufficient amounts to influence processes involving free radical-mediated injury. The stronger activity of Sa-HWS compared to Sc-HWS might be partly related to a different qualitative and quantitative composition in diferulates.

Reference: 1. Barthomeuf, C.M. et al. (2001) *J Agric Food Chem*, 49, 3942-46