

**Research Information on Comfrey Cream**  
(*Symphytum x uplandicum* NYMAN)

**PUBLISHED STUDIES:**

**1. Therapieergebnisse und Anwendungssicherheit von Symphytum-Herba-Extrakt-Crème in der Behandlung von Dekubitus. [Efficacy and safety of topical Symphytum cream in the treatment of pressure ulcers.]**

**Abstract:** [Original article in German] In an open, prospective use study, 161 patients with 198 decubitus ulcers (pressure ulcers, ITT population) in stages II and III were treated with the topical preparation symphytum herb extract cream. The bandages with the cream were changed every 2–3 days. The primary parameters evaluated were the area of the sore and the depth of the wound (planimetrically in mm). In all, 151 patients with a total of 184 pressure sores (PP population) were included and received treatment over a period of 4 weeks in order to evaluate the treatment results. Complete healing of the pressure sores within 4 weeks was observed in 85.9 % (PP population)/79.8 % (ITT population) of the treated ulcers. Over a treatment duration of 25–30 days, a 89.2 % reduction of the total decubitus area was observed. The same result was found for the depth of the pressure ulcer with a reduction of 88 %. The overall treatment success was from both the perspective of the physician and the patient considered successful in 90.4 % (5-point scale) of cases and 87.9% (100 mm VAS, PP population). Two cases of local irritation were observed after 25/30 days (1.2 % of the patients with exposure), thus showing very good skin compatibility. The efficacy of symphytum herb extract cream is surprisingly good in the treatment of pressure ulcers.

Source: Stepan J, Ehrlichova J, Hladikova M. Therapieergebnisse und Anwendungssicherheit von Symphytum-Herba-Extrakt-Crème in der Behandlung von Dekubitus. *Zeitschrift für Gerontologie und Geriatrie*. 2014;47(3):228-235.

**2. Beinwell-Herba-Extrakt-Crème zur Schmerzlinderung bei training induziertem Muskelkater – eine randomisierte, placebokontrollierte Studie. [Topical comfrey cream for the pain relief of exercise-induced muscle soreness - a randomized, placebo-controlled study.]**

**Abstract:** [Original article in German] Topical comfrey preparations are authorized for the treatment of blunt traumas. Effects against muscle pains caused by overload have also been observed. The aim of this explorative, randomized and placebo-controlled pilot study was the preparation of a confirmatory clinical trial in subjects suffering from muscle soreness through the examination of acute pain-relieving effects of a preparation containing a concentrate of the aerial parts of medicinal comfrey (*Symphytum × uplandicum* NYMAN) as an active constituent.

**Method:** Symptoms of muscle soreness were induced in 24 healthy subjects by a standardised muscle overload of both upper arms under controlled conditions. All subjects were randomised to a single application of verum on one upper arm, and of placebo on the other arm. Pain relieving effects of the study preparation were assessed by the repeated algometric measurement of pain on pressure over the time of 240 minutes. Pain on movement was assessed with the aid of a visual analogue scale. Furthermore, the painless movability of the joint was evaluated.

**Results:** Due to carry-over effects the intra-individual right arm/left arm comparisons of verum and placebo were unsuitable for an evaluation. In contrast, the alternative evaluation by using the parallel group approach (related to the arm randomised to either the study medication or placebo) showed distinct trends and statistically significant parameters in favour of verum, despite the small group size and the single application of the study preparations. In the evaluation of the responder rate a significant effect was observed for pain on pressure already after 30 and 120 minutes (27.5 vs. 0 % after 30 minutes;  $p=0.093$ ; 72.7 vs. 25.0 % after 120 minutes;  $p=0.039$ ). An improvement of pain on movement was already shown in the comparison of groups after 15 minutes in 66.7 versus 16.7 % of subjects ( $p=0.036$ ). Assessments of strength of effect led to the demonstration of a trend towards a superiority of verum over placebo after 30 minutes, with statistical significance reached after 120 minutes ( $39.0 \pm 21.2$  vs  $19.6 \pm 22.8\%$  improvement,  $p=0.060$ ).

**Conclusions:** The quick onset of pain-relieving effects of the topical comfrey herb extract cream already known from other studies could also be observed when applied against muscle pain related to overload induced muscle soreness. Useful suggestions for the planning of a confirmatory follow-up trial could be derived from this study.

Source: Uebelhack R, Shaudt M, Schmidt M. Beinwell-Herba-Extrakt-Crème zur Schmerzlinderung bei traininginduziertem Muskelkater – eine randomisierte placebokontrollierte Studie. *J Pharmakol Therap.* 2014;23(1):3.

### **3. Topical comfrey extract: study confirms rapid effects on myalgia due to strain or acute blunt trauma.**

**Background:** The efficacy and tolerability of a topical preparation with an active substance concentrate made from the aerial parts of medicinal comfrey (*Symphytum x uplandicum NYMAN*) was tested in 215 patients with acute or chronic myalgia of the upper and lower back (active substance  $n=104$ , reference  $n=111$ ) (Kucera et al. 2005). A low dose but otherwise identical preparation (1% versus 10% active substance) was used as a reference. The result was a significantly better and clinically relevant reduction in pain at rest and on movement after 4-5 days with the high active substance concentration. **Method:** A subgroup analysis was used to examine whether under topical comfrey therapy there are differences in response in myalgia of various origins. A differentiation was made based on pain due to chronic muscle strain ( $n=135$ ; of which  $n=56$  had active substance) and myalgia due to acute blunt trauma ( $n=75$ ; of which  $n=47$  had active substance). Five patients with pain of another origin were not included in the analysis. As in the main study, the primary parameter for demonstrating efficacy was a reduction in pain on movement on day 4-5 after commencement of the study, as measured by visual analogue scale. **Results:** In myalgia of the upper and lower back due to chronic strain as well as due to acute blunt trauma a statistically highly significant benefit from active substance was seen on day 4-5 as compared to reference (t-test,  $p = 2 \times 10^{-5}$  for pain due to chronic strain and  $p = 1 \times 10^{-5}$  for pain due to blunt trauma) along with a significantly faster onset of the pain relieving effect (Mann-Whitney test,  $p = 2 \times 10^{-5}$  for pain due to chronic strain and  $p = 4 \times 10^{-3}$  for pain due to acute blunt trauma). The superiority of active substance compared to reference was clinically relevant in both subgroups. **Conclusions:** Topical comfrey extract has a fast acting analgesic effect in myalgia of the back caused by chronic strain as well as acute blunt injury.

Source: Studie bestätigt rasche Wirksamkeit bei Myalgien durch Überlastung oder akute stumpfe Traumen. [Topical comfrey extract: study confirms rapid effects on myalgia due to strain or acute blunt trauma.] Kucera M, Hladfkova, M. *J Pharmakol Therap.* 2012;21(4):112-117.

#### **4. Randomized double-blind study: wound-healing effects of a Symphytum herb extract cream. Symphytum×uplandicum Nyman) in children.**

**Abstract:** The wound healing effects of the topically applied preparation Traumaplant® containing a concentrate (10% active ingredient) from the aerial parts of medicinal comfrey (*Symphytum × uplandicum Nyman*) were examined in a randomized, controlled, clinical double-blind study. An otherwise identical low-dose preparation (1% active ingredient) was used as a control. The study population consisted of 108 children aged 3-12 years (n=54/group) with fresh abrasions. A 50% healing rate was reached 0.9 days earlier with the higher than with the lower concentration cream. The difference in the healing rate ( $0.38 \pm 0.18/\text{day}$  [95% CI 0.33-0.4] vs.  $0.26 \pm 0.14/\text{day}$  [95% CI 0.222-0.297]) was statistically significant ( $p=0.0002$ ). Physicians and children/parents both rated the efficacy of the 10% cream as significantly better than that of the control preparation (physicians' assessment after 2-3 and 7-9 days for verum vs. control: 90.7 and 92.6% vs. 55.6 and 74.0% of the healing rates were rated as "good" or "very good", respectively;  $p=0.0004$  and  $0.01$ ). In subgroup analyses, there was no significant influence on the healing rate of the time elapsed between the accident and the first consultation, the wound surface, the affected body part, the origin of the injury and gender. There were no reported adverse effects or problems with tolerability such as local skin irritations. The results justify application of the *Symphytum* herb extract cream in children with blunt traumata with or without abrasions.

Source: Barna M, Kucera A, Hladíková M, Kucera M. Randomized double-blind study: wound-healing effects of a Symphytum herb extract cream (*Symphytum×uplandicum Nyman*) in children. *Arzneimittelforschung.* 2012 Jun;62(6):285-9.

#### **5. Symphytum: Effizienz auch bei Kindern belegt. [Symphytum: proven efficacy in children].**

**Abstract:** Topical application of comfrey to treat blunt trauma has long been proven in clinical practice. The clinically efficacy of a special ointment preparation of comfrey is backed by appropriate studies, and has now been tested in a new, non-interventional study in children with blunt trauma. The results found a highly significant decrease in severity of the symptoms. [Continuation of research published as Grünwald, J., Bitterlich, N., Nauert, C., Schmidt, M. *Z Phytother.* 2010;31:61–65.]

Source: Schmidt M. Symphytum: effizienz auch bei Kindern belegt. *Naturamed.* 2011:36-39. [German]

**6. Application and safety of comfrey cream (*Symphyti herba*) in paediatric treatment of acute blunt traumata (Anwendung und Verträglichkeit von Beinwellcreme (*Symphyti herba*) bei Kindern mit akuten stumpfen Traumen).**

**Abstract:** In an open observational study the therapeutic applicability and safety of application of a topical cream preparation from the aerial plant parts of the comfrey cultivar “*Symphytum × uplandicum* Nyman ‘Harras’” was tested in 196 children in the age of 4 to 12 years with respect to the paediatric treatment of acute blunt traumata (contusions, strains and distortions). The extent of symptom improvement observed in this study (pain on palpitation, pain in motion, functional impairment, oedema and haematoma) was found in the range of 84.5 to 100% for the single parameters ( $p < 0.001$ ) with at the same time an excellent tolerability and compliance. Topical comfrey cream was therefore confirmed as a remedy of choice for the treatment of acute blunt traumata in children.

Source: Grünwald, J., Bitterlich, N., Nauert, C., Schmidt, M. Application and safety of comfrey cream (*Symphyti herba*) in paediatric treatment of acute blunt traumata (Anwendung und Verträglichkeit von Beinwellcreme (*Symphyti herba*) bei Kindern mit akuten stumpfen Traumen) . Anwendung und Verträglichkeit von Beinwellcreme (*Symphyti herba*) bei Kindern mit akuten stumpfen Traumen. *Z Phytother.* 2010;31:61–65. [German]

**7. Final report of the monitoring of the rehabilitation in cervical spine functional disorders in medication coverage with the help of Traumaplant®.**

**Abstract:** the authors present a comparative study that was carried out in cooperation with the two above-mentioned rehabilitation centers. It involves therapeutic experiences with functional disorders of the cervical vertebral column – one of the most common illnesses for which patients come into outpatient rehabilitation and the health spas. Materials and Methodology: since patients who come for outpatient rehabilitation show other characteristics than patients in health spas, the authors decided to carry out the study at two locations. Fifty patients in outpatient care were included in the project, and 300 patients staying as inpatients in the health spa – 255 patients completed the study. Therapeutic results obtained in the Revitalis rehabilitation center and the Bojnice health spa are presented. Results: Rehabilitation with the aid of pharmacotherapeutic support using the ointment Traumaplant proved to be significantly or numerically more effective with regard to the relaxation of contracted muscles and improvement of the mobility of the fasciae.

Source: Guth A. Final report of the monitoring of the rehabilitation in cervical spine functional disorders in medication coverage with the help of Traumaplant®. *Lek Obz.* 2009;58(suppl):1-5. [German]

## **8. Wound healing effects of a *Symphytum* herb extract cream (*Symphytum x uplandicum* NYMAN): results of a randomized, controlled double-blind study.**

**Abstract:** Wound healing effects of a topically applied preparation (Traumaplant) containing a concentrate (10 % active ingredient) from the aerial parts of medicinal comfrey (*Symphytum x uplandicum* NYMAN) were examined in a randomized clinical double-blind study including 278 patients with fresh abrasions (verum: n = 137), among them 64 patients of up to 20 years of age (verum n = 29, reference product n = 35). An otherwise identical low-dose preparation (1 % active ingredient; n = 141) was used as a reference. **RESULTS:** After 2-3 days of application of the study medication a highly significantly and clinically relevantly faster initial reduction of wound size of 49 + or - 19 % versus 29 + or - 13 % per day in favour of verum ( $p < 5 \times 10^{-21}$ ) was found. From linear regression time to complete healing was determined to be 2.97 days faster with verum than with reference (4.08 vs. 7.05 days,  $p = 7.4 \times 10^{-45}$  in the t-Test comparison of regression lines). The physicians rated efficacy as good to very good in 93.4 % of cases, as compared to 61.7 % in the group treated with the reference product ( $p = 2 \times 10^{-11}$ ). On a scale of 0-100 verum was rated with 84.4 + or - 10.1 points by the patients themselves. The reference product was rated with 65.5 + or - 24.8 points ( $p = 6.1 \times 10^{-18}$ ). In subgroup analyses no significant influence of abrasion area, gender and age on healing effects was found, albeit a tendency towards better effects with increasing age was observed. No adverse effects or problems with drug tolerability occurred. Specifically, cutaneous reactions were observed in none of the patients throughout the 10 day observation phase. **CONCLUSIONS:** *Symphytum* herb extract can be attributed distinct wound healing effects, effects that can explicitly be used in paediatrics.

Source: Barna M, Kucera A, Hladíková M, Kucera M. Wound healing effects of a *Symphytum* herb extract cream (*Symphytum x uplandicum* NYMAN): results of a randomized, controlled double-blind study. *Wien Med Wochenschr.* 2007;157(21-22):569-74. [German]

## **9. Topical *Symphytum* herb concentrate cream against myalgia: a randomized controlled double-blind clinical study.**

**Abstract:** The effectiveness and tolerability of the topical *Symphytum* product Traumaplant (Harras Pharma Curarina, München, Germany) (10% active ingredient of a 2.5:1 aqueous-ethanolic pressed concentrate of freshly harvested, cultivated comfrey herb [*Symphytum uplandicum* Nyman], corresponding to 25 g of fresh herb per 100 g of cream) in the treatment of patients with myalgia (n=104) were tested against a 1% reference product (corresponding to 2.5 g of fresh comfrey herb in 100 g of cream; n=111). The primary efficacy parameter in this double-blind, reference- controlled, randomized, multicenter study of 215 patients with pain in the lower and upper back was pain in motion, assessed with the aid of a visual analogue scale. Secondary efficacy parameters included pain at rest, pain on palpation, and functional impairment. With high concentrations of the treatment product, amelioration of pain on active motion ( $P < 5 \times 10^{-9}$ ), pain at rest ( $P < .001$ ), and pain on palpation ( $P = 5 \times 10^{-5}$ ) was significantly more pronounced than that attained with the reference product and was clinically highly relevant. A number needed to treat of 3.2 was calculated from the study results. Global efficacy was significantly better ( $P = 1 \times 10^{-8}$ ) and onset of effects was faster ( $P = 4 \times 10^{-7}$ ) with the high-concentration product. Tolerability of the highly concentrated study product was good to

excellent in all patients. Study results confirm the known anti-inflammatory and analgesic effects of topical *Symphytum* cream. As a new finding, applicability in certain forms of back pain can be concluded.

Source: Kucera M, Barna M, Horáček O, Kálal J, Kucera A, Hladikova M. Topical *Symphytum* herb concentrate cream against myalgia: a randomized controlled double-blind clinical study. *Adv Ther.* 2005 Nov-Dec;22(6):681-92.

#### **10. Efficacy and safety of topically applied *Symphytum* herb extract cream in the treatment of ankle distortion: results of a randomized controlled clinical double blind study.**

**Abstract:** In a controlled, double blind, randomized multicentre study, the efficacy and safety of the topical comfrey product Traumaplant (10% active ingredient of a 2.5:1 aqueous ethanolic pressed juice of freshly harvested, cultivated comfrey herb (*Symphytum x uplandicum* NYMAN), corresponding to 25 g of fresh herb per 100 g of cream; n = 104) was tested against a 1% product (corresponding to 2.5 g of fresh comfrey herb in 100 g of cream; n = 99) in 203 patients with acute ankle distortion. With the high concentration, decrease of the scores for pain on active motion, pain at rest and functional impairment was highly significant and clinically relevant on days T3-4 as well as T7 ( $p < 0.001$ ). Amelioration of swellings as compared to reference was also significant on day 3-4 ( $p < 0.01$ ). Efficacy was judged good to excellent in 85.6% of cases with verum and in 65.7% of cases with reference on day 3-4. Overall tolerability was excellent.

Source: Kucera M, Barna M, Horáček O, Kováriková J, Kucera A. Efficacy and safety of topically applied *Symphytum* herb extract cream in the treatment of ankle distortion: results of a randomized controlled clinical double blind study. *Wien Med Wochenschr.* 2004 Nov;154(21-22):498-507.

#### **11. Effects of *Symphytum* ointment on muscular symptoms and functional locomotor disturbances.**

**Abstract:** In an open, uncontrolled study, 105 patients with locomotor system symptoms were treated twice daily with an ointment containing a *Symphytum* active substance complex. A clear therapeutic effect was noted on chronic and subacute symptoms that were accompanied mainly by functional disturbances and pain in the musculature. The preparation was most effective against muscle pain, swelling and overstrain, arthralgia/distortions, enthesopathy, and vertebral syndrome. Activity was weaker against degenerative conditions, for which the ointment may have an adjuvant role with the aim of improving muscular dysfunction and alleviating pain.

Source: Kucera M, Kalal J, Polesna Z. Effects of *Symphytum* ointment on muscular symptoms and functional locomotor disturbances. *Adv Therapy.* 2000;17(4):204-210.

## **12. The local treatment of acute supraspinatus tendon syndrome with a Symphytum active substance complex ointment.**

**Abstract:** In a comparative study on patients suffering from acute supraspinatus tendon syndrome, the efficiency of a plant active substance complex was tested within the context of a conservative treatment in which the preparation was combined, as a percutaneous adjuvant treatment, with local infiltration therapy. The clinical criteria of “day pain”, “night pain”, and the abduction-provoked “painful arc” were used as assessment criteria. During the three-week study time period, the pain symptoms and the correlated functional disturbances decreased considerably more rapidly with local application of the *Symphytum* active substance complex than in the control group without the additional percutaneous treatment. The differences between the corresponding assessment criteria proved to be statistically significant.

Source: Mayer G. The local treatment of acute supraspinatus tendon syndrome with a Symphytum active substance complex ointment. *Dtsch Z Sportmed [German J Sports Med]*. 1993;44(3):121-124.

## **13. The local treatment of contusions and distortions of the knee joint with a Symphytum active substance complex ointment.**

**Abstract:** The local efficacy of a phyto-antitraumatic (an ointment containing a *Symphytum* active substance complex) was investigated in 22 patients with acute contusions and distortions of the knee joint. During the course of treatment, the clinical symptoms (joint swelling, pain on active and passive movement, local rest pain) decreased rapidly and soon had completely subsided. All patients were completely free of pain after 10 to 14 days or even earlier. The tolerance of the *Symphytum* ointment was good. No systemic or allergic reactions were observed.

Source: Mayer G. The local treatment of contusions and distortions of the knee joint with a Symphytum active substance complex ointment. Orthopedic Clinic of the Medical Department of Ernst-Moritz-Arndt University of Greifswald. Original Article. 1992.

## **14. Effect of a Symphytum ointment with sports injuries of the knee joint.**

**Abstract:** Treatment with a *Symphytum peregrinum* (synonymous with *Symphytum x uplandicum NYMAN*) ointment was carried out for an average of 8 days on 40 patients suffering from recent knee joint injuries, distortions, and contusions which did not require surgery. Except for physical measures such as compression bandages, ice packs, and directions for independent exercise therapy, no other additional treatment was carried out. Assessment criteria were pain, swelling, and restriction of movement. Of the patients, 34 (85%) rated the efficacy of the preparation as good to very good, and only 9 (15%) rated the therapeutic result as less satisfactory. All 40 patients assessed the tolerance of the ointment positively. No side effects occurred in any of the cases. It can be concluded from the results that the 10% *Symphytum* ointment is very suitable for the local treatment of knee joint injuries.

Source: Hess H. Effect of a Symphytum ointment with sports injuries of the knee joint. *Dtsch Z Sportmed [German J Sports Med]*. 1991;42(4):156-162.

### **15. The local treatment of acute lateral distortions of the ankle joint with an ointment containing a *Symphytum* active substance complex.**

**Abstract:** In a comparative study, the efficacy of an ointment containing a *Symphytum* active substance complex was tested with acute distortions of the ankle joint in comparison to conventional cutaneous cryotherapy. The clinical criteria of resting pain on movement, and swelling in the region of the injured joint were used as assessment parameters. During the 14-day treatment period, the pain symptoms and post-traumatic swelling improved more rapidly with local application of the *Symphytum* ointment than with the control treatment. The differences between the assessment parameters for the two forms of topical treatment were statistically significant.

Source: Mayer G. The local treatment of acute lateral distortions of the ankle joint with an ointment containing a *Symphytum* active substance complex. *Acta Therapeutica*. 1991;17:89-100.

### **16. Effect of an active substance complex from *Symphytum* on epithelialization.**

**Abstract:** The wound-healing efficacy of a 10% *Symphytum peregrinum* (synonymous with *Symphytum x uplandicum NYMAN*) ointment was tested on experimentally produced open shallow wounds with an intact columnar layer in healthy volunteers. The ointment base and a polyacrylamide agar gel without active substances served as controls. After application of the *Symphytum peregrinum* ointment, the time taken for the wounds to heal completely was clearly reduced in comparison to the two control preparations, and the difference with respect to the active substance-free ointment vehicle was statistically significant ( $p < 0.05$ ).

Source: Niedner R. Effect of an active substance complex from *Symphytum* on epithelialization. *Acta Therapeutica*. 1989;15:289-297.

## **ADDITIONAL SCIENTIFIC PUBLICATIONS**

### **17. Comfrey Herbal Extract in Phytotherapy (Beinwell-Herbaextrakt in der Phytotherapie).**

**Abstract:** [Original article in German] A specifically selected comfrey herb extract for phytotherapy Comfrey (*Symphytum officinale sensu lato*) is an outstanding example for the rational use of medicinal plants against blunt traumas such as contusions, strains and sprains. The use against muscle and joint complaints, e.g. against muscle pain in the back, is newly added to these well-established indications. A high performance cultivar was specifically selected and cultivated for the use in medicinal products. It was registered at the European Plant Variety Office with the denomination »*Symphytum x uplandicum Nyman* >Harras<«. In an exemplary way this variety fulfils the requirements for quality, efficacy and safety. Among other factors, quality is given by the reproducible cultivation, the - within narrow margins - constant phytochemical composition and the non-application of herbicides and pesticides. The efficacy against blunt traumas with and without abrasions has been demonstrated in clinical trials. It also



includes the application in children. Safety is concluded from the observation of an exceptionally good clinical tolerability and from the lack of potentially toxic pyrrolizidine alkaloids in the harvested plant material. From the point of view of phytotherapy the fact that all clinical trials with the preparation from the aboveground plant parts have been performed with exactly the same plant variety and quality is also unique: It allows a direct transferability between studies of clinical findings with respect to efficacy and safety.

Source: Schmidt M. Beinwell-Herbaextrakt in der Phytotherapie. *Zeitschrift für Phytotherapie*. 2012;33(3):114-117.

**18. Comfrey ointment- a topical analgesic (Beinwell-Salbe – ein topisches Analgetikum).**

No abstract available.

Source: Guth A., Schmidt M. (HWS-Syndrom. Beinwell-Salbe – ein topisches Analgetikum) [Comfrey ointment – a topical analgesic]. *Naturamed*. 2010;25(3):26-28. [German]

**19. Comfrey cream surpasses pure physical therapy (Beinwellcreme übertrifft rein physikalische Therapie).**

No abstract available.

Source: Guth A., Schmidt M. Beinwellcreme übertrifft rein physikalische Therapie [Comfrey cream surpasses pure physical therapy]. *Der Allgemeinarzt*. 2010; 32(7):46. [German]

**20. Comfrey cream increases the success of physical therapy (Beinwellcreme steigert den Erfolg der physikalischen Therapie).**

No abstract available.

Source: Guth A. Beinwellcreme steigert den Erfolg der physikalischen Therapie [Comfrey cream increases the success of physical therapy]. *Allgemeinarzt*. 2010;32(Supple 8):2-4.

**21. Tolerability of Traumaplant cream in young patients (4-12 years) with intact skin (TRACY-1).** Harras Pharma. 2011. Data unpublished.

No abstract available.

**22. Tolerability of Traumaplant cream in young patients (4-12 years) with non-intact skin (TRACY-2).** Harras Pharma. 2011. Data unpublished.

No abstract available.

## NON-CLINICAL RESEARCH

### **23. Topic: High-performance cultivar ‘Harras’ as a contribution to quality, efficacy and safety of comfrey (*Symphytum x uplandicum* Nyman).**

**Abstract:** The cultivation of a high performance cultivar especially selected for the absence of pyrrolizidine alkaloids may therefore be considered an important contribution to efficacy and safety of comfrey preparations. Based on selection, the cultivar ‘Harras’ (*Symphytum x uplandicum* Nyman) was introduced into cultivation. The cultivar excels in the absence of detectable quantities of pyrrolizidine alkaloids in the aerial plant organs.

Source: Schmidt M. Topic: High-performance cultivar ‘Harras’ as a contribution to quality, efficacy and safety of comfrey (*Symphytum x uplandicum* Nyman). [Thema: High-performance cultivar ‘Harras’ as a contribution to quality, efficacy and safety of comfrey (*Symphytum x uplandicum* Nyman)]

*Z Arznei-Gewurzpfla.* 2008;13(4):182-183. [German].