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of a phytotherapeutic agent for use in the doctor's office  
to treat various forms of cough

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# Phytotherapie • Phytotherapy

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## Efficacy and tolerability of Bronchosan

**An open multicentre study investigating the suitability of a phytotherapeutic agent for use in the doctor's office to treat various forms of cough**

**M**edicinal plants play an important role in the treatment of cough. Pharmacological studies have shown that phytotherapeutic remedies have a positive effect on coughs via a variety of mechanisms. Among other things, these include mucolysis, dilation of the airways, central suppression of the cough reflex, and a disinfectant action. The respective importance of each individual mechanism differs from one plant to another. While one medicinal plant has a more pronounced bronchodilatory effect, another has a greater mucolytic action. To optimize the various action profiles of the individual plants, in Bronchosan, they have been combined in a special formula, and at the same time the taste has been improved and stability optimized.

Bronchosan meets the requirements for a good antitussive effect, absence of side effects and pleasant taste through a combination of the following medicinal plants:

- Ivy (*Hedera helix*)
- Thyme (*Thymus vulgaris*)
- Burnet saxifrage (*Pimpinella saxifrage*)
- White horehound (*Marrubium vulgare*)
- Liquorice (*Glycyrrhiza glabra*)
- Anise (*Anisi aetheroleum*)
- Eucalyptus (*Eucalypti aetheroleum*).

The aim of the present study was to investigate the tolerability and the suitability for use in the doctor's office of Bronchosan to treat various forms of cough.

Bronchosan is produced from the medicinal plants ivy (*Hedera helix*), thyme (*Thymus vulgaris*), burnet saxifrage (*Pimpinella saxifrage*), white horehound (*Marrubium vulgare*), and liquorice (*Glycyrrhiza glabra*) and, as a taste corrective, also contains the two essential oils anise (*Anisi aetheroleum*) and eucalyptus (*Eucalypti aetheroleum*). The study was designed as a multicentric, uncontrolled open trial. Taking part in the study were twelve general practitioners who recruited a total of 79 patients (70 adults, 9 children aged under 13 years) with a cough. The dosage of Bronchosan was determined individually for each patient, and was oriented to the patient's condition and the course of the illness. The data of 70 patients proved to be evaluable; 9 patients had used impermissible concomitant medication, and therefore had to be excluded from the final analysis. In 57 patients (81.4%), the care-providing physicians assessed Bronchosan to have ameliorated the cough, and in 54 patients (77.2%), the overall effect of Bronchosan was rated to be good to very good. Only in 8.6 per cent of the overall cases did side effects occur. These were mild, reversible, and could be interpreted as accompanying symptoms of the organism weakened by the chronic cough and possible airways infection.

The present study revealed that Bronchosan is an antitussive with a good effect and high level of tolerability. On account of its lack of respiratory depressant or constipation-promoting effects or other side effects, Bronchosan represents a good alternative to other cough medicines. Overall, Bronchosan proves to have an excellent efficacy/tolerability profile, and is highly suitable for use in the doctor's office.

This composition of Bronchosan is based both on pharmacological knowledge and traditional usage (1, 2, 3, 4).

**Ivy:** Ivy is a very old devotional and medicinal plant with numerous medical applications. The active constituents are, for the most part, saponins and glycosides. Recognized fields of application are

catarrh of the upper airways and chronic inflammatory bronchial diseases. In addition to its expectoration-promoting, mucolytic and mucociliary clearance actions, ivy also has spasmolytic effects on the smooth musculature of the respiratory tract. These two actions of the ingredients of ivy explain the positive effects of this plant in various forms of cough.



**Thyme:** Thyme has an intensive, pleasant ethereal odour. From ancient times, this medicinal herb has been known for its good effect, in particular on spastic cough, as exemplified by croup. For the most part, its active ingredients are essential thyme oil, tannins, saponins and bitter principles. Reflecting this complex composition of thyme, its mode of action is also complex. In the first instance there is the essential thyme oil with its secretolytic, secretomotor, broncholytic and antibacterial actions. And this also determines the recognized fields of application of thyme: bronchitis, croup and catarrh of the upper airways. The fact that certain components of thyme are excreted via the lungs, and must therefore be present at the site of the action, provides an additional explanation of the good effect of this plant.

**Burnet saxifrage:** The umbelliferous burnet saxifrage contains saponins and essential oil. Traditionally, it has been employed for the treatment of lung diseases. It promotes the clearance of sputum (expectoration), and is a highly suitable component of a cough mixture formula.

**White horehound:** The medicinal plant white horehound is used as a bitter principle and has a general tonicizing effect and immune defence-promoting action. Additionally, it has been considered to have a mucolytic effect in the respiratory tract.

**Liquorice:** The main ingredient of liquorice is glycyrrhizic acid, which has a mild hormone-like effect similar to that of aldosterone. Liquorice enhances the expectoration-promoting action of other antitussive agents, and is thus frequently used in cough mixture formulas.

#### **Taste ingredients**

**Eucalyptus:** Eucalyptus oil is the essential oil of the eucalyptus tree, *Eucalyptus globulus*. The main

constituent is cineole (eucalyptol). Its predominant effects are mucolytic and expectoration-promoting. In addition, its intensive odour exerts a beneficial effect on the organism as a whole.

**Anise:** Aniseed is a mild, soothing antitussive with a pleasant taste, for which reason it is frequently used as a taste corrective. Its main ingredients are essential oil and anethol. It provokes the secretion of a sweetish, watery saliva which moistens and soothes the back of the pharynx, and thus ameliorates the troublesome cough reflex. In addition, it also shows an expectoration-promoting, mildly spasmolytic and antibacterial effect. Aniseed is indicated for the treatment of catarrh of the upper airways.

### **Aim and course of the study**

The aim of the study was to determine the efficacy and tolerability of Bronchosan used as an antitussive agent. At the same time, its suitability for use in the doctor's office was to be evaluated, and the optimal dosage for adults and children established.

#### **Study design**

The study was designed as a prospective case observation study, and was carried out as a multicentric, uncontrolled, open type phase III trial. The study protocol requires the examination of 50 to 100 patients with a cough. Definitively, 79 patients recruited by twelve general practitioners from among patients who were prescribed treatment for a cough participated in the trial. Before the start and after termination of treatment with Bronchosan, an assessment was carried out by the care-providing physician.

#### **Patient selection**

The participants were recruited from the patients of twelve general

practitioners working in Switzerland.

#### **Inclusion criteria**

- Any form of cough
- Age between 15 and 75 years (this applied only to the first 20 patients). In accordance with a joint decision of the test physicians and the director of the study, all age groups were subsequently admitted.

#### **Exclusion criteria**

- Known bronchial asthma
- Concomitant treatment with other medications with an antitussive effect.

#### **Recording of diagnosis and symptoms**

Before treatment with Bronchosan, a case history and clinical status were established for each patient. The phase of the illness and the severity of the cough were noted. With respect to the phase of the illness, a differentiation was made between an acute condition and a cough representing a residual symptom of a disease of the respiratory tract. Two different cough intensities were distinguished: a severe cough was defined as one requiring treatment with codeine-containing drugs, while a mild cough was one for which the patient did not require codeine-containing medication.

#### **Treatment duration and dosage**

The test preparation was supplied to the participating physicians in 20 ml dropper bottles. The prescribed dosage was:  $5 \times 10$  drops – in the case of children, reduced on the basis of age – added to a little water and taken in several sips.

The dosage recommended in the protocol was  $5 \times 10$  drops daily. The median (40 drops) of the final dosage was within this recommended range.

The duration of the treatment was between two and 28 days, with an average of six days. Children received a dosage appropriately reduced on the basis of age. For the entire treatment period, adults



received an average of  $4 \times 10$  drops of Bronchosan daily for six days, and children  $4 \times 6$  drops daily for seven days.

#### Concomitant medication

The concomitant use of antitussive agent and/or antibiotics was expressly forbidden. Other medications were allowed, but strict record-keeping was required.

#### Proof of efficacy and tolerability

The proof of efficacy was to be established by evaluation of the following parameters:

- indication (by the patient) of amelioration of the cough
- indication (by the patient) of disappearance of the cough
- overall assessment by the physician.

Tolerability was assessed on the basis of the side effects reported by the care-providing physician.

#### Statistical analysis

For the evaluation of the demographic data, statements about efficacy and tolerability, together with dosage guidelines, mean and percentage calculations were applied.

In addition, a medical assessment was made as to whether the results of the same-sense items were parallel and whether positive relationships were to be found between individual diagnostic categories and the degree of efficacy of Bronchosan.

## Results

#### Patient group

Of the 79 patients involved, 70 were evaluated for the testing of efficacy and tolerability. Nine patients who had used impermissible concomitant medication were excluded from the final analysis.

The 70 patients included 33 females (47.1%) and 37 (52.9%) males; 7 of the patients were children under the age of 13 years. In the majority of patients, no increased susceptibility for developing coughs,

for example due to smoking, or a bronchospastic predisposition, was found to be present.

In 29 patients (41.4%), the cough had previously been severe enough to require the use of codeine, while 40 patients (57.1%) had a less severe cough and would not have required treatment with codeine.

Forty-eight of the patients (68.6%) were in an acute stage of the illness, while in 20 patients (28.6%) the cough was considered to be a residual symptom.

#### Diagnostic groups

The test physicians received no initial instructions with respect to a description of the illness. The patients were divided into three groups only on termination of the study prior to statistical analysis, when they were assigned to the following three groups on the basis of the aetiology of the cough:

**Group 1:** Cough accompanying infection of both upper and lower airways.

**Group 2:** Cough accompanying infection of the upper airways.

**Group 3:** All other forms of cough.

Among the 70 patients, a majority of 62 (88.5%) had a cough accompanying an infection of the airways, 36 (51.4%) patients having

an infection of both upper and lower airways, and 26 (37.1%) involvement of only the upper airways. In 14 patients, simultaneous infection of the upper airways was excluded.

#### Proof of efficacy

The proof of efficacy in this case observation study is based on the amelioration or disappearance of the cough that occurred during the period of observation, together with an overall assessment of the course of the illness under treatment with Bronchosan as made by the care-providing physician.

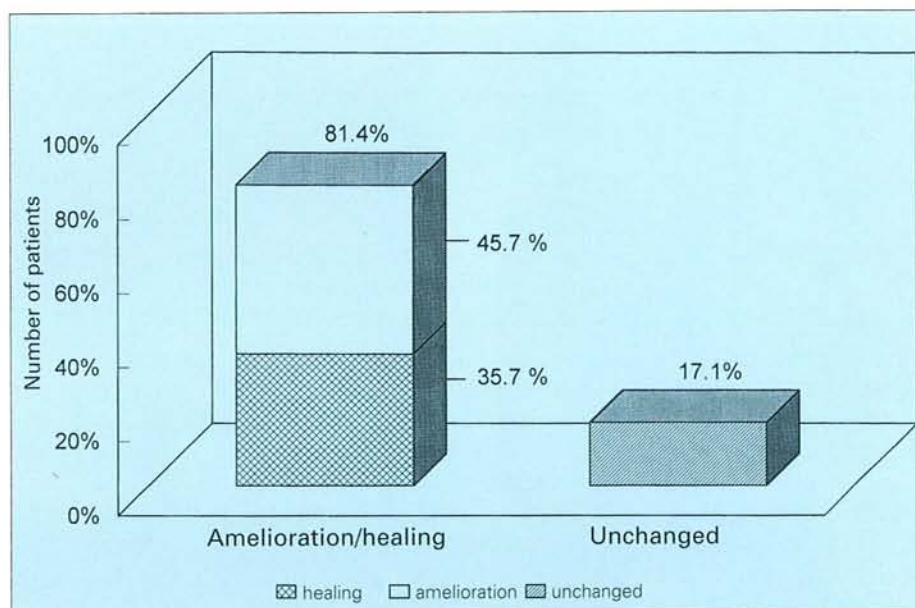
#### Changes in symptoms

In 57 patients (81.4%), a clinically relevant amelioration of the cough occurred during the course of the period of observation, and in 25 (35.7%) of these definitive healing (disappearance of cough) was seen (**Figure 1**). In twelve patients (17.1%) no change in the symptoms was observed. In a single patient, an assessment of the changes in the symptoms was lacking.

#### Overall assessment

##### of the course of the illness

The care-providing physicians assessed the overall effect of Bronchosan treatment to be good to



**Figure 1.** Effect of Bronchosan on cough. Symptom changes in 70 patients with cough treated with Bronchosan.



very good in 54 patients (77.2%) (Figure 2). Only in 16 cases (22.8%) was the overall effect assessed to be weak or lacking.

#### *Results of therapy as a function of diagnostic group*

Treatment was highly successful in all three groups. In the first group with a cough associated with respiratory infection involving both upper and lower airways, the overall effect was assessed to be good to very good in 84.4% of the cases. In the second group with cough accompanying an infection of the upper airways, the overall effect was considered good to very good in 69.2% of the cases, while in the group containing all other forms of cough, the overall effect was considered good to very good in 75%.

#### *Tolerability*

In the present study, Bronchosan was administered for a total of 419 patient days. The largest daily dose applied was 100 drops.

In six of the 70 patients, such side effects as tiredness, loss of concentration, dizziness or nausea, as well as acid eructation, were noted. Apart from tiredness, which was experienced by three different patients, each of all the other side

effects occurred in only one patient. All the side effects were mild in nature and cleared up spontaneously.

## Discussion

When a cough presents, differentiated treatment is the most reliable means of achieving amelioration quickly. In particular in the case of newly occurring cough, herbal remedies that contain a wide range of different active principles, are extremely successful. Mucolysis, expectoration, dilatation of the airways, and suppression of the cough centre are the major mechanisms involved.

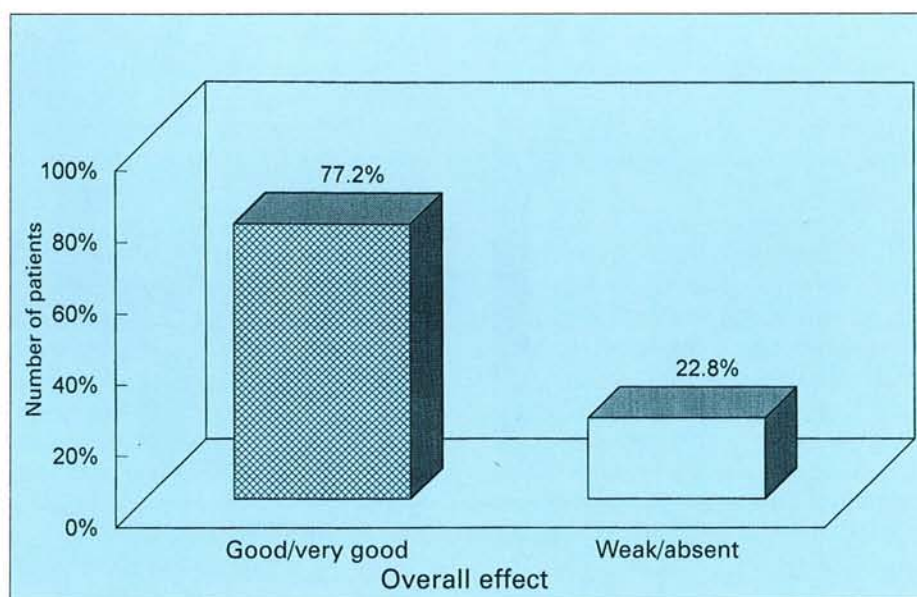
Bronchosan contains a combination of plants that traditionally have long proven effective against cough, and which have also demonstrated their effect in pharmacological studies.

In the present study, Bronchosan proved to be a highly effective antitussive with very few side effects, and suitable for use in the doctor's office. The antitussive action of Bronchosan was found to be independent of the aetiology of the cough. In all diagnostic groups, it showed a high level of efficacy, ir-

respective of whether the cough occurred in association with infection of the airways or not.

Testing for tolerability revealed no serious side effects, and most of the symptoms listed under side effects could well be interpreted as occurring in association with the underlying disease, rather than being true side effects.

The range of scatter in the dosage would be surprising in the case of a synthetic medication; for a phytotherapeutic agent, however, it is nothing unusual. Phytotherapeutic substances with a wide therapeutic range generally show considerable differences in individual responsiveness. On the basis of the present study, the following dosage recommendations can be made: adults and children older than 13 years of age should receive 10 drops 3–5 times a day, children aged between 2 and 3 years 5 drops 3–5 times a day, in a little water. In summary, the results reveal an excellent efficacy/tolerability profile for Bronchosan used as an antitussive. In this investigation, Bronchosan proved to be a highly effective remedy for cough of various aetiologies, with no respiratory depression or constipation-promoting, or other side effects, and may thus be considered a true alternative to other antitussive drugs.



**Figure 2.** Overall assessment of the course of the illness in 70 patients with various forms of cough treated with Bronchosan.

#### References

- 1) H. Schilcher, Ätherische Öle – Wirkungen und Nebenwirkungen, Deutsche Apotheker-Zeitung 124: 1433-1442 (1984)
- 2) U. Moser, Antitussiva und Expektorantien, Deutsche Apotheker-Zeitung 125: 997-1003 (1985)
- 3) R.F. Weiss, Lehrbuch der Phytotherapie, 264 (1991)
- 4) R. Hänsel, Phytopharmaka, 109 (1991)

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