

## A Clinical Trial of *Euphorbia prostrata* W. Ait and *Euphorbia Thymifolia*. Linn. in the treatment of Bronchial Asthma (Tamaka shvasa)

Gopal Dutt Sharma<sup>1</sup>, B. N. Upadhyay<sup>2</sup> and S. N. Tripathi<sup>3</sup>

Received on July 5th, 1982

The review of literatures, both Ayurvedic and of modern medicine, dealing with bronchial asthma reveals that this disease is known from ancient times. It is a fairly common and distressing disease, the incidence of which is increasing day by day with the increased stress and strain of modern life. The plant species, *Euphorbia prostrata* and *E. thymifolia*, are found all over India and widely distributed by popular traditional physicians and sages at several religious centres and Institutions for the treatment of bronchial asthma. Hence, it has been selected for a scientific clinical trial. Again, two ecotypes, red and green, of both the species are available. The present study was conducted on the red eco-type only.

- 
1. M.D. (Ay.) Scholar,
  2. Lecturer
  3. Professor of Kayachikitsa.  
Department of Kayachikitsa,  
Institute of Medical Sciences,  
BHU, Varanasi

In this study, proved and selected cases of bronchial asthma having acute paroxysm were taken and treated with the solid extract (*Ghansatva*) of red eco-type of *E. prostrata* and *E. thymifolia* in the dose of 12 gms/day, in four equal divided doses orally for fourteen days. The assessment of the result was done on the basis of improvement in the presenting symptoms, signs and some respiratory function tests. The results were found encouraging as about 33 per cent of the patients were relieved and 60 per cent improved.

### Introduction :

Bronchial asthma (*Tamaka Shvasa*) is a fairly common disease marked by mild to extremely severe attacks of breathlessness which is usually preceded by the exposure to known or unknown allergen, stress, strain, emotional changes or changes in the environment. It is a highly distressing disease of the respiratory system

and its occurrence is increasing day by day with increased stress and strain of modern life. Inspite of extensive researches, we have not been able to do much to prevent, either the progression or the incidence of this disease.

The *Tamaka Shvasa* is described in all the ancient Ayurvedic classics and it has been stressed that this disease is curable only if it is of recent origin, otherwise, it continues to be a life-long illness, and can be controlled and relieved only temporarily by medical treatment. Thus the prognosis of this disease depends on the chronicity and the extent of pathological involvement. Few drugs have been described to have *Shvasahar* action (Bronchodilator action). Hence, more emphasis is laid on the total management of the patient to offer a better on lasting relief.

Here, in this study, an attempt has been made to evaluate the effect of *Dugdhika* (*E. prostrata W. ait* and *E. thymifolia, Linn.*) in the treatment of bronchial asthma with view to provide a cheap herbal drug for the use of the masses, particularly in rural areas where the drug is freely available.

Though this plant is not frequently included in anti-asthmatic treatment in Ayurveda, it is widely distributed by popular physicians and sages at several religious

centres and institutions. Hence, it has been selected for a scientific trial.

### The Drug *Dugdhika*:

The word *Dugdhika* or *Dudhi* literally means having latex. Thus, all the plants having latex may be known by the term *Dugdhika*. However, two types of plants have been described by this name, i. e., *Badi Dudhi* and *Chhoti Dudhi* or *Dugdhika*. *Badi Dudhi* has been identified as *E. hirta* and *E. thymifolia, Linn.* and *E. prostrata W. ait.* Both are included in *Chhoti Dudhi* as there is great morphological resemblance between them. However, they can be identified by the arrangements of hair. The ovary and fruits of *E. thymifolia* are throughout hairy while in *E. prostrata* hair are present only along the ribs (Fig. 1 and 2). In addition, both the species may be either green or reddish as these are the two eco-types.

These are small prostrate annual herbs growing throughout India in the plains and lower hills upto the height of 5,500 feet, along the road sides, in gravel walks, among garden weeds, in grass lands and in marshy areas.

The stem is prostrate and flattened, cylindric, divaricately branched with small leaves 3-6, 2-4 mm., petioled, obliquely oblong or elliptic oblong and rounded at the apex. Male flower is

simple pedicelled. Stamen is without floral envelopes, arranged around the female flower consisting of 3-celled pedicelled ovary in the centre of an involucral cap. Fruit-capsule, shortly stalked, pubescent and seed-quadrangular, bluntly pointed.

#### **Material and Methods :**

The collection of red eco-type of *Dugdhika* (*Euphorbia prostrata* and *E. thymifolia*) was done and it was sun dried. The solid extract (Ghansatva) of this plant was prepared by the classical method of *Raskriya*, i. e., rigorously boiled in water to make the decoction and evaporate the same to get the solid extract. Tablets of 0.75 gms were prepared by following the appropriate pharmaceutical techniques. Disintegration time of the tablets was three minutes. The dose of the tablet was fixed to be 16 tablets per day in four divided doses representative of 50-60 gms of the crude drug, i. e., the usual dose of common herbs prescribed for decoctions. The treatment was given for a period of two weeks for evaluation of the response in bronchial asthma.

#### **Selection of Patients :**

A group of fifteen patients of bronchial asthma, having mild or moderate paroxysms, was selected and hospitalized for this trial. Apart from detailed history

and physical examination, Chest X-ray, blood examination for TLC., DLC., Hb%, ESR, Stool for ova and cyst, Urine for routine chemical and microscopic examinations and Sputum for AFB were investigated in every case to diagnose. During this period, the patients were kept on routine hospital diet and were acclimatized in the hospital environment. For the objective assessment of the result, respiratory rate, breath holding time, vital capacity and FEV were also recorded before and after treatment at weekly intervals.

Oxygen was permitted when indicated and there was a standing instruction to give I. V. Aminophylline, if the patient gets a severe attack and record.

For the assessment of result after treatment the patients were classified into three groups, depending upon the degree of improvement.

#### **1. Relieved :**

They were those in whom all the symptoms and signs of the disease disappeared and the respiratory functions came within normal range and did not require any adjuvant therapy other than the trial drug.

#### **2. Improved :**

Cases with significant improvement but neither the clinical features disappeared nor respi-

ratory functions came within normal range.

### 3. Unchanged :

The patients who did not show any improvement either in clinical features or in respiratory functions after fourteen days of treatment.

### Observations :

In this group, most of the patients fell in two age groups, i. e., 20-30 years and 50-60 years. It may have some relevance with the aetio-pathology of this disease. In Ayurveda *Kapha* and *Vata* are considered to be predominant in this disease. In the former age group, there is likelihood of the predominance of *Kapha* and in the later one, of *Vata*. About thirty-four per cent of the patients were female and most of them were house wives, coming from rural areas. The kitchen smoke may have been the precipitating factor in them. Ayurveda has also emphasised the role of smoke and dust in the aetiology of this disease. An important observation has been recorded regarding the allergic diathesis in the family. About thirty-three per cent of the cases and positive family history of bronchial asthma and eighty-seven per cent of the patients of this group had one or the other types of associated allergic disorders e. g. eczema, urticaria, rhinitis etc.

On clinical examination, all

the patients complained of breathlessness (dyspnoea) and cough and were having prolonged expiration and rhonchi. Eighty per cent of the cases reported a feeling of tightness in the chest while coryza and crepitations were present in sixty-six per cent of the cases. Barrel shaped chest was obvious in 13.3 per cent of the cases. The mean respiration rate, breath holding time and F. Vital capacity were 27.78/ minute, 13.35 seconds and 1632 ml. respectively, indicating gross abnormality in respiratory functions.

The total and differential count study of white blood corpuscles revealed that mild leucocytosis (more than 10000/ cu. mm.) was present only in twenty-six per cent of the cases; in the rest of them it was within the normal range. Regarding the differential count, there was not a single case of tropical pulmonary eosinophilia, and eosinophil count of more than ten per cent was observed only in 26.66 per cent of the cases. Emphysema could be demonstrated radiologically in twenty per cent of the cases. No significant abnormality was detected in the routine chemical and microscopic examination of urine. Of course, single microscopic examination of faeces was positive for ova of *ascaris lumbricoides* in 6.6 per cent of the for cyst of *Giardia lamblia* in thirteen per cent and cyst of

Entamoeba histolytica in thirteen per cent.

#### Result of the Treatment :

As mentioned earlier, for the assessment of the result, the patients were classified into three groups after treatment and the findings were as follows.

Relieved	: 33.4%
Improved	: 60.0%
Unchanged	: 6.6%

#### Discussion :

The present study is limited to a small group of fifteen patients of bronchial asthma with a view to assess the usefulness of *Dugdhika* (*E. thymifolia*, Linn. and *E. prostrata* W. ait) in the management of bronchial asthma which has been claimed to be highly useful by some traditional physicians as well as by previous workers (Sharma, et al, 1970).

Sharma et al, have reported the response of the drug in the dose of 3 gms/day of *Ghan satva* of *Dugdhika*, but we could not find any action with this small dose. Effect could be observed only with the dose of 12 gms./day. Variation in the effective dose in herbal drugs is quite possible due to ecological changes in the plant i. e., the place of collection, time of collection, maturity of the plant etc. These are likely to influence the concentration of the active principal.

Sometimes the potency of the drug is also modified or lost during the processing of the medicine, i.e., during drying, boiling etc.

As far as the result is concerned, Sharma et. al. have reported marked improvement in 80 per cent of the cases while in our study this was only thirty-three per cent. Thus, there is marked difference in the evaluation of the response which is likely to be a personal error requiring further check up.

Inspite of the best precautions, it is very difficult to draw a definite conclusion from a clinical trial in bronchial asthma because it is a chronic disease characterised by automatic periods of exacerbations and ameliorations during the course of the disease, and on two patients of *Tamaka Shvasa* are similar because of the constitutional variations in the patients and the progression of the disease. Hence, a controlled clinical trial will be necessary to draw a definite conclusion.

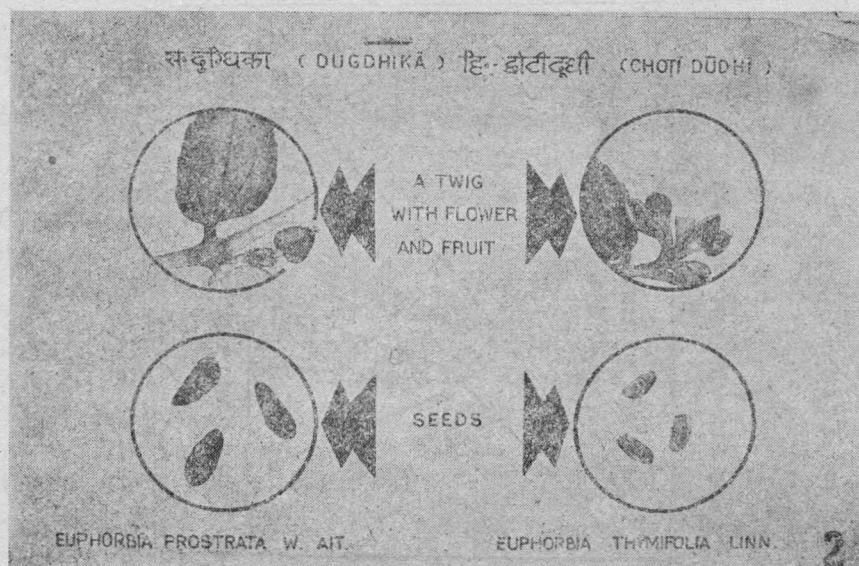
An interesting observation has been noted regarding the age incidence of this disease. The maximum number of patients have been found to be within the age groups of twenty to thirty years and fifty to sixty years. According to Ayurveda, there is predominance of *Kapha* and *Vata* in this disease. Normally, in the childhood there is predo-

minance of *Kapha* and in the older age group, there is predominance of *Vata* synchronising with the disease phenomenon. In the previous study, thyroid functions have been reported to be optimum in the

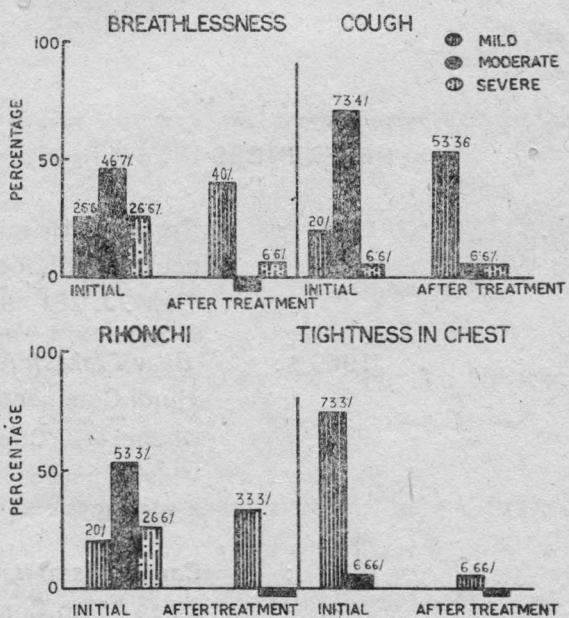
youth which may be an index of *Paittika* activity in the body. Thus, the incidence of bronchial asthma is likely to be low in this age group. (Upadhyay et al, 1980).



Euphorbia prostrata W. Ait

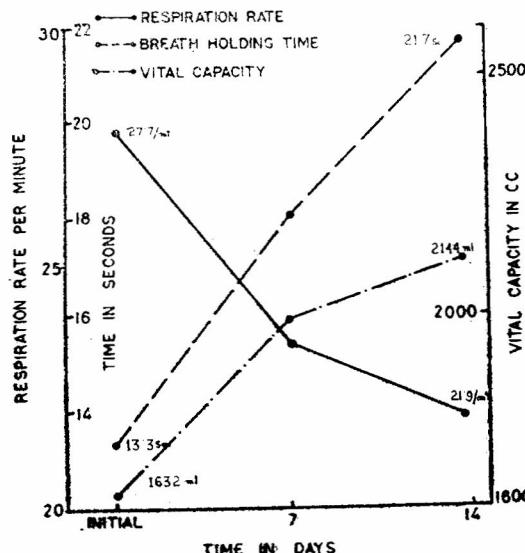


RESULT OF TREATMENT IN B.A. WITH DUGDHAKA



3

EFFECT OF DUGHDHAKA TREATMENT ON RESPIRATORY  
FUNCTION TESTS IN B.A. PATIENTS



4

**REFERENCES**

- Alderson H. R.                    1980 : Trends in Hospital case of acute childhood Asthma,  
Bailey. P. and Wests.              B. M. J. 281, 9, 1191
- Bhava Mishra                    1969 : *Bhav Prakash Nighantu*,  
Hindi Commentary by K.C.  
Chunekar, (Chaukhamba  
Vidya Bhavan, Varanasi)  
4th Edition.
- Caraka                            1970 : *Caraka Samhita, Chikitsa  
Sthan*, 17th Chapter  
(Chaukhamba, Varanasi).

**A Clinical Trial of Euphorbia prostrata W. Ait and Euphorbia thymifolia Linn.**

Sharma P. V.	1978 :	<i>Dravya Guna Vijana II Part</i> (Chaukhambha Sanskrit Sasthan, Varanasi).
Hooker J. D.	1885 :	<i>Flora of British India</i> , vol. V.(L.Reeve & Co., London).
Kirtikar K.R. and Basu B. D.	1933 :	<i>Indian Medicinal Plants</i> , (M/s. Bishan Singh, Dehradoon)
Sharma G. P. and Sharma P. V.	1970 :	Studies on the efficacy of Dugdhika in Bronchial asthma <i>D. Ay. M. Thesis.</i>
Upadhyay, B. N. and Tripathi S. N.	1980 :	<i>Ph. D. Thesis</i> , Deptt. of Kayachikitsa, I. M. S., B. H. U., Varanasi.

## हिन्दी सारांश

यूकोर्बिया प्रोस्ट्रेटा डब्ल्यू अइट एवं यूकोर्बिया थाइमीकोलिया लिन. का तमक-श्वास की चिकित्सा में एक आतुरीय परीक्षण

गोपाल दत्त शर्मा, बी. एन. उपाध्याय एवं एस. एन. त्रिपाठी

तमक-श्वास एक चिरकारी व्याधि है, जिसकी सफल चिकित्सा का अभी भी अभाव है। आयुर्वेद में इस व्याधि के लिए श्वास-हर गौषधि प्रयोग के साथ-साथ वद्यमुखी चिकित्सा व्यवस्था पर अधिक बल दिया गया है। इस लेख में दुर्घिका नामक वनस्पति के श्वास-हर प्रयोग का परिणाम उल्लिखित है।

दुर्घी नाम से बड़ी एवं छोटी दुर्घी का विवरण मिलता है, जिसमें छोटी दुर्घी का कुछ निकित्सक एवं साधु संत श्वास रोग की चिकित्सा में प्रयोग करते हैं। अतः इसका परीक्षण किया गया। छोटी दुर्घी के नाम से मिलते वाली वनस्पति की दो जानि Euphorbia prostrata W. Ait तथा E. thymifolia L. मिलती है। बहुधा

14. 16. 0.75