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***Drynaria quercifolia*: A luring cure for chronic pulmonary obstructive disease with relapsed tuberculosis**

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Abstract

In this modern world and mechanised life people are facing many health problems. One of the common problems is respiratory disorder. Most of the time this condition is associated with the environmental pollution and food habits. Very few are affected due to their genetic make-up. Now-a-days respiratory disorder affects people irrespective of their age. It ranges between asthma to tuberculosis where the affected people experience dyspnea. In most of the cases people suffer with Chronic Pulmonary Obstructive disease. Majority of the people manage by using drugs, nasal sprays and inhalers. But long term usage of all these result in many side effects. The epiphytic fern gives the helping hand to people who suffer from relapsed, drug-resistant tuberculosis. This study is done to analyse the efficiency of the rhizome of *Drynaria quercifolia* as a case study of a 29 year old male who visited a tribal healer from Malasar community in the study area Velliangiri hills.

Keywords: tuberculosis, *Drynaria quercifolia*, malasar, velliangiri hills

Introduction

In this modern world and mechanised life people are facing many health problems. One of the common problems is respiratory disorder. Most of the time this condition is associated with the environmental pollution and food habits. Very few are affected due to their genetic make-up. Now-a-days respiratory disorder affects people irrespective of their age. It ranges between asthma to tuberculosis where the affected people experience dyspnea. Allergic reactions due to dust particles in the surroundings, pollen grains, insects, pets, smoke and chemicals are also playing equal role in creating this problem. In most of the cases people suffer with Chronic Pulmonary Obstructive disease. Majority of the people manage by using drugs, nasal sprays and inhalers. But long term usage of all these result in many side effects. The epiphytic fern gives the helping hand to people who suffer with relapsed, drug-resistant tuberculosis. This study is done to analyse the efficiency of the rhizome of *Drynaria quercifolia* as a case study of a 29 year old male who visited a tribal healer from Malasar community in the study area Velliangiri hills.

CPOD

Chronic Obstructive Pulmonary Disease is also known as CPOD where people find out difficulty in breathing. Now-a-days it is becoming a common disorder among us. The air flow is blocked due to the obstruction in the bronchus and the bronchioles. In India more than 10 million cases are reported per year^[1]. Symptoms include cough with or without phlegm, shortness of breath, wheezing, fast breathing, chest tightness, anxiety, depression, hypoxaemia, sleeping disorders, pneumonia, frequent respiratory infections and weight loss. Emphysema and chronic bronchitis are the most common conditions that make up COPD. Damage to the lungs from COPD can't be reversed. Cigarette smoking is a risk factor. It is said that there is no cure for CPOD, but disease management will relieve the symptoms and can slow down the progression of disease^[2].

Tuberculosis

It is a serious and potential bacterial infectious disease in the lungs which spreads easily from person to person. In India more than 1 million cases are reported per year. The causative organism is *Mycobacterium tuberculosis*. The symptoms are chronic cough with or without phlegm, fever, chills, night sweats, weight loss, blood in the sputum, loss of appetite, dyspnea

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and muscle weakness. This infection can partly be preventable by vaccine. There are many synthesised drugs for the treatment. There are Multi-drug-resistant tuberculosis (MDR-TB), Extensively drug-resistant tuberculosis (XDR-TB) and Totally drug-resistant tuberculosis (TDR-TB).

Phytomedicine

There are many plant based phytomedicines to treat and cure tuberculosis without any side effects. In Indian system of medicine *Abrus precatorius*, *Ocimum sanctum*, *Mangifera indica*, *Allium cepa*, *Allium sativum*, *Ficus religiosa*, *Terminalia arjuna*, *Mucuna pruriens*, *Piper nigrum*, *Piper longum*, *Solanum trilobatum*, *Mukia maderaspatana*, *Zingiber officinale*, *Linum usitatissimum*, *Curcuma longa*, *Glycyrrhiza glabra*, *Adathoda vasica*, *Pergularia daemia*, *Naringi crenulata*, *Aegle marmelos*, *Phyllanthus reticulatus*, *Drynaria quercifolia*, *Withania somnifera* and many other plants are used to treat tuberculosis effectively. These herbs are given in different formulations based on the experience of the tribal healer and the severity of the disease. Most of the herbs are easily available, highly effective and it is very cheap.

Materials and Methods

Study Area

The study area is the slopes and foot hills of Velliangiri hills located in the eastern part of Western Ghats where the tribal community Malasar reside. This area is an effective elephant migratory corridor falls under Boluvampatty reserve range. This is an important part of "The Nilgiri Biosphere" in the Tamil Nadu State. The area is rich in flora and has diverse biomes in different elevations. The whole area is considered as sacred groove by the indigenous community. The malasars have vast and in depth knowledge about the medicinal plants which grow in their ecosystem. They have their own system of plant collection and management of the ecosystem where they live.

Specimen Collection

During the rainy season the plant specimens of *Drynaria quercifolia* were collected by the tribal community malasar

from the study area. Plants with healthy rhizome were selected for the study. The selected plants were cleaned and washed thoroughly in running water in the nearby Noyyal river. The rhizomes collected by Malasar are marketed by another tribal community Irular in front of Velliangiri Andavar temple in Poondi.

Drynaria quercifolia (L.) J. Smith: Family – Polypodiaceae
D. quercifolia is an epiphytic creeping fern with a short, stout, thick, fleshy rhizome. It is covered with dark brown furry epidermis which resembles the legs of a goat. In Tamil it is known as Mudavaattukal kizhangu. In Sanskrit it is 'Ashwakatri'. The tribal people of the study area call this as Rajavanangi. Phytochemical studies showed it has potent antibacterial activity and this is used in the treatment of tuberculosis, chronic cough and fever [3].

Case Study

A male patient who visited a tribal healer was selected for case study as himself and his parents volunteered. He was a chronic patient complaining with chronic pulmonary obstructive disease with relapsed tuberculosis. His mother informed that he was diagnosed with CPOD before five and a half year when he was working as software professional. At that time he developed severe breathing disorder since he was working in an air conditioned office. He has taken the advised medications and used inhaler. But he did not get recovery. Instead his weight reduced. After few days of that they found blood in his sputum and went for check up. He was diagnosed for tuberculosis and took medications for nine months. He showed some recovery until he stopped the medication as per his physician's advice. He started to get continuous fever and shivering. He was gasping and was under ventilation. This time the treatment was ineffective to him. His health started to deteriorate while taking the medications. He became bedridden even after hospitalisation. After discussing with the tribal healer they started the herbal formulations.

Traditional tribal medication

The medication was given to the man as below:

Table 1: Internal (for drinking)

S. No	Name of the plant	Parts used	Quantity	Mode
1	<i>Drynaria quercifolia</i>	Rhizome	50 gms.	Decoction (Salt to taste)
2	<i>Gingiber officinale</i>	Dried root (powder)	¼ tsp	
3	<i>Curcuma longa</i>	Dried root (powder)	A pinch	
4	<i>Piper nigrum</i>	Corns(powder)	2 pinches	
5	<i>Piper longum</i>	Fruit (powder)	2 pinches	
6	<i>Cuminum cimum</i>	Crushed seeds	½ tbsp	
7	<i>Phyllanthus reticulatus</i>	Tendor Stem	Chew stick	Chewing and brushing the teeth ⁴

Table 2: Internal (For consumption)

S. No	Name of the plant	Parts used	Quantity	Mode
1	<i>Drynaria quercifolia</i>	Rhizome	50 gms	Pound them together, make pea size balls air dry them.(Tablet form)
2	<i>Allium sativum</i>	Bulb	5 cloves	
3	<i>Naringi crenulata</i>	Leaves	10	
4	<i>Piper cubeba</i>	Fruit	9	
5	<i>Glycyrrhiza glabra</i>	Dried root (powder)	6 pinches	

Results and Discussion

The ingredients (Table 1) were put together and boiled in water to get soup. The person was advised to drink *Drynaria quercifolia* (Plate 1) soup daily twice. Before preparation the rhizome (Plate 2) was peeled properly to remove the furry

peel and cut into small pieces. He was advised to drink the soup daily twice. All the ingredients (Table 2) were pounded together without adding water. Fresh leaves of *Naringi crenulata* (Plate 3) was added for the preparation. The resultant coarse paste was made into pea sized balls and air

dried. He was advised to consume two balls per day after food. He was advised to stop the usage of any tooth paste and was advised to use the chew sticks of *Phyllanthus reticulatus* [5] (Plate 4). He was advised to visit the tribal healer once in seven days. He got improved in his second visit. During his

8th visit he was able to walk properly and he told his legs are not shivering. His cough reduced drastically. He was breathing properly. His body temperature became normal [6]. At the end of the 3rd month his body weight gained and his bent body was little straightened.



Plate 1: *Drynaria quercifolia*



Plate 2: Pieces of the rhizome



Plate 3: *Naringi crenulata*



Plate 4: *Phyllanthus reticulatus*

Conclusion

The interview and discussion with the traditional healers, the client and his parents proved the antibacterial, antipyretic, antispasmodic and anti-inflammatory properties of the selected plant *Drynaria quercifolia*. It is helpful to the people who suffer breathing disorders. This kind of traditional treatment is inexpensive to cure the dangerous diseases like CPOD and tuberculosis. It is approachable by the people from any economic group which gives satisfaction to the people with ailments without any side effect.

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