

# Preparing Medicine from Chlorophytum Borivilianum

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**Abstract**—*Chlorophytum borivilianum* is also referred as safed musli belongs to the kingdom Plantae and family Liliaceae. They are used to compose medicines which are used to enhance male potency, overcome signs of fatigue and also regarded as an energy booster in asthmatic condition. The geographical distribution of this plant in India is in Tamilnadu, Gujarat, Madhya Pradesh. The major chemical constituents of this plant is saponin, tannins, glycosides and alkaloids. These chemicals are capable to fabricate medicines which can restore to health dangerous diseases like lowering down the level of cholesterol, reducing risk of heart diseases, reducing certain forms of cancer (preventing cellular damage) and many other diseases. In our paper we will be thrash out how we can utilize these various chemical to prepare a medicine from this plant.

**Keywords:** saponin, cholesterol, fatigue

## 1. INTRODUCTION

*Chlorophytum borivilianum* is also referred as safed musli belongs to the kingdom Plantae and family Liliaceae. A Safed Musli found in most parts of the Central Region of India, It can grow successfully in the wide range of temperature and rainfall. It requires Sandy loam soil with proper drainage system to facilitates its growth. This species is found in abundance in natural forest areas. It flowers in the month of August and early September. The colour of flower is white.



Fig. 1: Flower of Safed musli[14]

Leaves are sessile or short petiolate, with sheathing bases, 15 to 45 cms. The leaves are dried in the month of Dec/Jan. and it remains dormant during rest of year (early winter till

break of monsoon) [1]. The name of medicine which is already used by human nowadays, are Natural Safed Musli Powder which is used for increasing the sexual potency and also improves the quality of the off-springs[2].

The experiments have shown that its role in sexual behavior, spermatogenic activity,[3,4] immuno modulatory activity,[5] anti-stress and anti-oxidant activities.[6] Clinical trials also confirm its positive impact on sexual behavior, sperm count, and so on.[7,8].

### 1.1 TYPES

Around sixteen different varieties have been identified to be found in the Indian SubContinent. Depending of the significant medicinal properties, *Chlorophytum borivilianum*, a particular variety of Safed Musli has got maximum demand and commercial value.

The main 8 types of Safed Musli are :-

1. *Chlorophytum borivillianum*
2. *Chlorophytum arundinaceum*
3. *Chlorophytum tuberculatum*
4. *Chlorophytum malabericum*
5. *Chlorophytum attenuatum*
6. *Chlorophytum breviscapum*
7. *Asparagus filicinus*
8. *A. gonocladus*

In this paper we will be focussing about the first type of safed musli that is *Chlorophytum borivillianum* only

### 1.2 Chemical Constituent

Safed Musli contains carbohydrates (35-45%), fiber (25-35%), alkaloids (15-25%), saponins (2-20%), and proteins (5-10%). It is a rich source of over 25 alkaloids, vitamins, proteins, carbohydrates, steroids, saponins, potassium, phenol, resins, mucilage, and polysaccharides and also contains high quantity of simple sugars, mainly sucrose, glucose, fructose, galactose, mannose and xylose[9].

## 2. USE OF SAFED MUSLI FOR CURING MANY DISEASE

A safed musli is used for curing many diseases. It has a great medicinal value. A Safed musli is consists of different constituents like saponins, carbohydrates, fiber, alkaloids and proteins which help for bettering the immune of entire body. The tuber roots of the plant of this plant is utilised to make a tonic to cure weakness and male impotency it also help to increase the count of sperms. It serves as high energy booster. This is known function of saponins and other constitute but saponins also lower Cholesterol and Reduces Inflammation. Cholesterol is important to a healthy body. Cholesterol forms cell membranes, some hormones and is necessary for digestion. But a high level of cholesterol in the blood (hypercholesterolemia) is a major risk factor for coronary heart disease, which can lead to a heart attack or stroke. The great complexity of saponin structure arises from the variability in the glycone structure and the nature of the side chains.

Saponins extracted from *C. borivilianum* has a property due to which saponins gets bind to bile salt and cholesterol in the intestinal tract. Bile salts form small micelles with cholesterol facilitating its absorption. Saponins cause a reduction of blood cholesterol by preventing its re-absorption. The lowering the level of cholesterol and inflammation lowers the risks of heart attack and stroke and cardiovascular diseases[10]

The roots of *C. borivilianum* contain cytotoxic steroidal glycoside saponin chloromaloside-A and spirostanol pentaglycosides embracing beta-Dapiofuranose which are responsible chemicals for anticancer property[11,12]. Saponins have antitumor and anti-mutagenic activities and can lower the risk of human cancers, by preventing cancer cells from growing. Saponins seem to react with the cholesterol rich membranes of cancer cells, thereby limiting their growth and viability.

## 3. METHODS OF EXTRACTION OF SAPONINS

### 3.1 Conventional Method for Saponin Extraction from Chlorophytum Borivilianum

The tuberous roots of *Chlorophytum borivilianum* always remains a major source for isolation of saponin. A conventional efficient method was developed for saponin isolation from in-vivo and in-vitro samples of *C. borivilianum* by delipidization and deproteinization with petroleum ether and chloroform leading to development of a whole new process for saponin isolation.



Fig. 2: Roots of safed musli [14]

Protocol was tested with saponin confirmatory test followed by thin layer chromatography.

### 3.2 Extraction of saponin using tubers as explants:

This method was applied and experimentally successfully proved by Rashmi Dwivedi. Saponin content was estimated by means of the method approved by Brik et al., 1963). To estimate the saponin content, 10 g of safed musli powder was suspended in 100 ml of 85% ethanol and kept for overnight. The supernatant was collected in a 100 L round bottom flask. The residue was re extracted in 85% ethanol and refluxed for half an hour.

The procedure was repeated thrice and ethanol was removed by distillation. The soft extract that remained was extracted using 50ml petroleum ether and refluxed for 30 min. cooled and the solvent poured off. The remaining soft extract was refluxed with 50 ml of ethyl acetate, followed by 50 ml of chloroform for 30 minutes; successively the organic solvents were removed from the separating funnel. The soft extract was dissolved in 50ml methanol, filtered and made up to 100ml. This hot extract was added drop by drop to 25 ml of acetone. A white precipitate thus formed was collected in a small beaker, dried in an oven at  $\pm 60^{\circ}\text{C}$  and finally collected. Thin layer chromatography (TLC) is the most commonly used method for obtaining chemical commonly used method for obtaining chemical layer prepared by using Silica gel 60 F254. Chloroform: methanol: water (50:45:5) mixture was used as the solvent system for the separation of samples.[13]

## 4. CONCLUSION

Safed musli or chlorophytum is as medicinal plant, with small and white flower. It can be cultivated commercial in a number of regions around the world. Safed musli (chlorophytum) has a great therapeutic and medicinal properties which have made safed musli a key ingredient in the preparation of a number of ayurvedic .It will be not wrong to call it as a unique gift of God Safed musli is used as a health-tonic, which boosts the general immune system of the body. Safed musli (chlorophytum) grows naturally in the central zones of India.

Safed musli are helpful in curing male impotence and erectile dysfunction and infertility. Safed musli contains a saponin which has a great and different property which enables it to serve as a very important medicine. As in paper we discussed about the property of saponins with which can be used to lower down the level of cholesterol which will result reduction in heart diseases. According to WHO(world's health organisation) globally, a third of ischaemic heart disease is attributable to high cholesterol. Overall, raised cholesterol is estimated to cause 2.6 million deaths (4.5% of total) and 29.7 million disability adjusted life years (DALYS), or 2.0% of total DALYS. Saponins have antitumor property also so I can be used to cure the some form of cancer. we have discussed the method of extraction of saponins. So it can be extracted and can be used to make medicines.

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