Common Plants That Can Reduce Fungal Infection in Tea Gardens

Good news! These formulas also have other uses, including reducing damage done by insect pests. For details, see page 2.

Liquid formulas prepared from several local plants have been shown to be effective at reducing a number of different fungal and bacterial infections on tea bush stems and leaves. The liquid should be sprayed regularly but lightly twice a week. During bad weather or where there are early signs of disease, plants can be sprayed lightly once a day until the disease is arrested.

Most fungicides – chemical or organic – will not be effective if disease is already well on its way. No amount of spraying is going to help if your plants are from weak seeds or cuttings, your soil is unhealthy, or your plants are generally weak from lack of nutrients.

Preparation: Crush 500 grams of any - or all - of the following four plant and leaves. Add to 30 liters of water, mix well and squeeze out active ingredients. Filter, then spray without dilution. It's best to use the formula immediately.

1. Sweet flag (*acorus calamus*)

In Assamese, Sweet flag is known as **boch** or sometimes themepru. In Hindi, it is called safed-bach. It is a perennial plant that grows in wet areas, with grass-like stems that grow up to five feet tall. Eugenol, an essential oil contained in the plant, has been shown to inhibit harmful or pathogenic fungi.

2. Candle bush *(cassia alata)*

In **Assamese**, this plant is called Khor-pat or Khor-goch. In Hindi, it's sometimes known as Dad mardan.

3. Sickle Senna or Sickle Pod *(Cassia tora)*

In **Assamese**, this plant is known as Bon Medelwa or Medeluwa. In Hindi: Chakvad. In Bengali: Chakunda

Here are some other uses for this particular plant:

- Chemical compounds present in this liquid formula have also been shown to inhibit the growth of certain common weeds, especially when applied to *Parthenium hysterophorus,* known locally as carrot weed or Pandhari.
- Leaves of Bon Medelwa can also be harvested and used as a green manure crop. They are particularly effective on acidic soils.

4. Common Cocklebur *(xanthium strumarium)*

In **Assamese**, the plant is commonly called Agora. In Hindi, it's called Chhota-gokhru. In Bengali, Banokra

The plant can also be dried and then burned. The smoke repels mosquitoes and other insect.
Its leaves and stems can be irritating to the skin of people and mammals. Be careful when handling it.

Formulas prepared from the leaves of either or both Agora (*xanthium strumarium*) and Boch (*acorus calamus*) have ALSO been shown to be effective at controlling red spider mites.

- At Toklai Tea Research Institute, leaves were first dried under shade and then powdered. The powder was mixed with water to make a liquid solution for the purposes of laboratory testing,
- Toklai used an electric grinder to make a fine powder from the dried leaves. The powder was passed through a 20 mesh sieve and stored in a 1 kg capacity polypropylene bag.
- 300 g of the powder was put into a 2 litre container. 1000 ml of clean water was added. The formula was shaken for about 8 hours in a mechanical shaker and left for 24 hours. After filtering with a fine muslin cloth, the liquid was put in a 2 litre container. Enough water was added to make 1000 ml. which was considered as stock solution. Concentrations (2.5, 5.0 and 10.0%) were prepared from the stock solution. The 10% solution, sprayed weekly over a period of 4 weeks, was determined to be the most effective at controlling red spider mites. The 5% solution was just slightly less effective.
- Small tea growers will have similar results using formulas made from fresh leaves of Agora and Boch.