Growing Artemisia

Used in treating Malaria

What is Artemisia?

Artemisia is a large, diverse genus of plants with between 200-400 species belonging to the daisy family Asteraceae. It comprises hardy herbs and shrubs known for their volatile oils. They grow in temperate climates of the Northern Hemisphere and Southern Hemisphere, usually in dry or semidry habitats. The fern-like leaves of many species are covered with white hairs. (Wikipedia.org)

How to Grow (in Africa)

- Cultivation of *Artemisia annua* — the source of artemisinin requires a minimum of six months. The extraction, processing and manufacturing of the final products last an additional three to five months, depending on the product formulation. The sudden increase in demand in 2004 has left the production system straining to keep pace. (World Health Organization, Artemisininbased combination therapies)
- Artemisias tolerate drought, heat, and cold but not wet in winter. They grow in any decent garden soil with good drainage. Plants perform best in full sun and become somewhat leggy in partial shade. (How Stuff Works)
  1. Plant in full sun in well-drained soil.
  2. Add a light application of organic fertilizer to the planting hole.
  3. Place the plants no deeper than they were growing in the containers.
  4. Set the plants 12 to 18 inches apart.
  5. Mulch around but not on top of the plants with 3 inches of organic compost.
  6. Water well until soil is completely moist. To care for Artemisia remove old foliage in spring, using bypass pruners to cut off old stems. Also, apply a light application of organic fertilizer on top of the soil in early spring.
  7. Mulch around but not on top of the plants with 3 inches of organic compost in spring. (eHow.com)

- Artemesinin has a very rapid action and the vast majority of acute patients treated show significant improvement within 1-3 days of receiving treatment. It has demonstrated the fastest clearance of all anti-malarials currently used and acts primarily on the trophozite phase, thus preventing progression of the disease. Few side effects are associated with artemesinin. However, headaches, nausea, vomiting, abnormal bleeding, dark urine, itching and some drug fever have been reported by a small number of patients. Some cardiac changes were reported during a clinical trial, notably non specific ST changes and a first degree atrioventricular block (these disappeared when the patients recovered from the malarial fever). (Wikipedia.org)

- Artemisinin and its derivatives have half-lives in the order of a few hours and therefore require at least daily dosing, usually for three days. For example the WHO approved adult dose of co-artemether (artemether-lumefantrine) is 4 tablets at 0, 8, 24, 36, 48 and 60 hours (six doses). This regimen has been proven to be superior to regimens based on amodiaquine.

How to prepare and dose

Artemesinin is not soluble in water and therefore Artemisia annua tea was postulated not to contain pharmacologically significant amounts of artemesinin. However, this conclusion was rebuked by several

experts who stated that hot water (85 C), and not boiling water, should be used to prepare the tea. Although Artemisia tea is not recommended as a substitute for the ACT (artemisinin combination therapies) more clinical studies on artemisia tea preparation have been suggested.

What is Malaria?

Malaria is an acute and sometimes chronic infectious disease due to the presence of protozoan parasites within red blood cells. These parasites are discharged through salivary ducts when the mosquito 'bites' another person.

- Malaria is caused by a parasite called Plasmodium, which is transmitted via the bites of infected mosquitoes. In the human body, the parasites multiply in the liver, and then infect red blood cells. (World Health Organization)
- The causative organism is transmitted through 'bites' of infected female mosquitoes of the genus anopheles. Also may be transmitted by blood transfusion. Incubation period: average 12 to 30 days.
- Symptoms can be various derangements of the digestive and nervous systems; characterized by periodicity, chills, fever, and sweats in the order mentioned, having pathological manifestations of progressive anemia, splenic enlargement, and deposition in various organs of a melanin, resulting from biological activity of the parasite.
- Key interventions to control malaria include: prompt and effective treatment with artemisinin-based combination therapies; use of insecticidal nets by people at risk; and indoor residual spraying with insecticide to control the vector mosquitoes. (World Health Organization)

Prevention (for volunteers)

To help with Malaria prevention it is advised to use mosquito nets to prevent bites, and wear long clothes to cover as much ask as possible. Exposed parts of the body should be treated with insect repellent. When sleeping, insecticide-impregnated bed nets should be used.
(Wikipedia.org)

Reference Sites/Links

General Herb Terminology: http://abc.herbalgram.org/site/PageServer?pagename=Terminology
EMedicinal herb site: http://www.emedicinal.com/diseases/malaria.php#define
Wikipedia.org: http://en.wikipedia.org/wiki/Artemisia_(plant)
News-Medical.Net, new guidelines on cultivating Artemisia plant used in anti-malaria medicines: http://www.news-medical.net/?id=22552
World Health Organization: http://www.who.int/topics/malaria/en/
Roll Back Malaria organization: http://www.rbm.who.int/
Artemisinin-based combination therapies (ACTs):
http://www.who.int/malaria/rbm/Attachment/20041108/malaria_treatment_update.htm
Anti-Malarial Medicine in Africa: http://www.afro.who.int/press/2003/pr2003042502.html
How Stuff Works – Artemisia: http://www.howstuffworks.com/search.php
Planting and Growing Artemisia: http://www.ehow.com/how_7586_grow-wormwood-(artemisia).html
Africa Fighting Malaria article: http://www.fightingmalaria.org/news.aspx?id=161