

**How to prevent
and treat malaria
with *Artemisia
annua* *anamed*
Part 1**

***anamed* international e.V.**
Action for Natural Medicine
Winnenden, Germany

www.anamed.net



Why is the anopheles mosquito a terrorist?

- ★ There are at least 300 million acute cases of malaria each year globally, resulting in more than a million deaths.
- ★ That means 3000 people die every day from malaria, mostly children.



It's getting worse

- ★ Malaria kills more African children under 5 than any other infectious agent.
- ★ The old conventional medicines like chloroquine do not work any more.



What is the usual response to malaria?

- ★ 1. Use treated bed-nets.
- ★ 2. (Sometimes) Spray with DDT.
- ★ 3. Treat with medicines:
 - a) Quinine based, e.g. chloroquine
 - b) Sulfadoxine and pyrimethamine, e.g. Fansidar
 - c) Artemisinin Combination Therapy (ACT)



Medicines

- ★ Chloroquine is cheap, widely available, but, today, ineffective.
- ★ That is also true for Fansidar and similar drugs.



ACT drugs are very effective.

Yet, the pharmaceutical industry pays farmers about 1,000 TShs. per kg for dried Artemisia and extracts the artemisinin.

All other constituents are thrown away – can you believe it?



Anamed's objections to the usual approach

First – we agree strongly with bednets, but

1. We see many problems in spraying with DDT because it may harm people.
2. ACT drugs may be effective, but
 - They are not always available.
 - They are expensive.
 - Sometimes they are fakes.
 - Mefloquine, a component of some ACT drugs, has 52 bad side-effects.



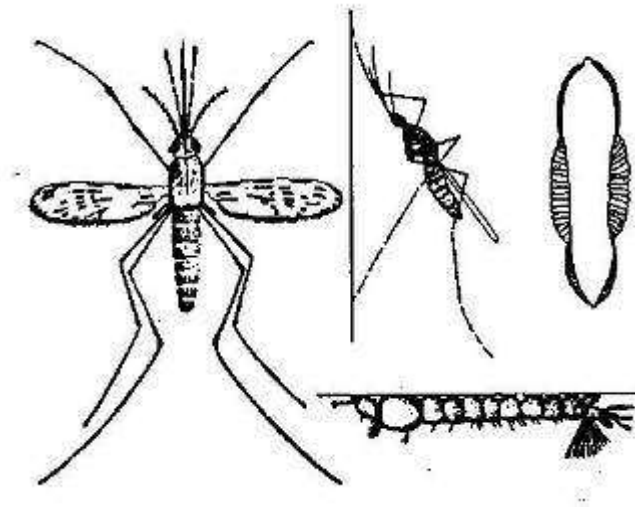
The unnamed programme against malaria

1. How to prevent malaria
2. How to treat malaria
3. The secret of Artemisia tea
4. How to grow Artemisia
5. How to use Artemisia
6. Other uses for Artemisia



How to prevent malaria 1

Reduce the number of mosquitoes



The mosquito, its egg and larva



All open water needs a lid or a mosquito grid. Otherwise mosquitoes breed there!



Clean up your rubbish!

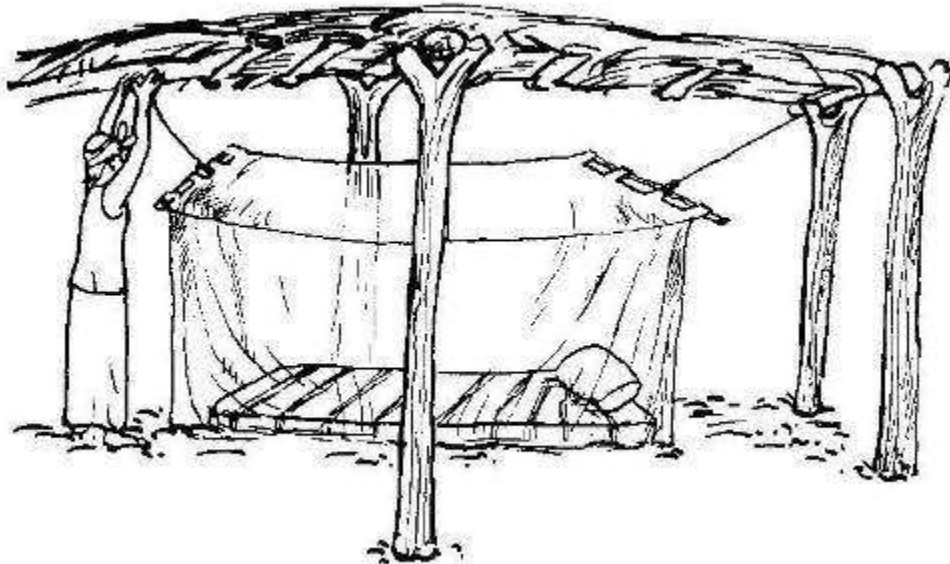
But please don't burn it like this! Bury it in a pit and cover it with soil!



How to prevent malaria 2

Reduce the contact between mosquitoes and people

a) Use a mosquito net



Also reduce the contact
between mosquitoes and
people by

- b) Using aromatic
herbs in the
house,
e.g. tagetes



- c) Putting a drop of neem oil in your kerosene
lamps



How to prevent malaria 3



Develop a strong immune system with fruit, vegetables, herbal teas and exercise.



How to prevent malaria 4

Protect your forests



Research has shown that areas cleared of trees are far more likely to harbour malaria carrying mosquitoes.



Everyone who cuts a tree down - should plant 10 trees in its place!



Charcoal for sale at the roadside.

Part of a superb tree nursery.



How to prevent malaria 5

Reduce the number of parasites

by treating malaria patients promptly!

and here's how.....



Treatment?

- ★ In Africa, less than 20% of patients with fever visit the formal health system. 80% of patients self-treat at home or visit a traditional healer.
- ★ Modern drugs are often
 - unavailable, or
 - unaffordable, or
 - used at an incorrect dose, or
 - even fakes.



Treat Malaria



with *Artemisia annua* anamed



Artemisia tea - the best treatment for malaria

Time and time again people tell us that Artemisia tea is the best of all treatments – and that they remain free of malaria for a longer period of time.



Artemisia annua ***anamed***

is a **hybrid** developed
from a plant that has
been used to treat fever
and malaria in China for
more than 2000 years!



Treat malaria with herbs

Whatever treatment you use, take together with lemon grass tea whilst the fever lasts.



Cymbopogon citratus



Why is Artemisia tea so effective?

Artemisia contains a substance called artemisinin.

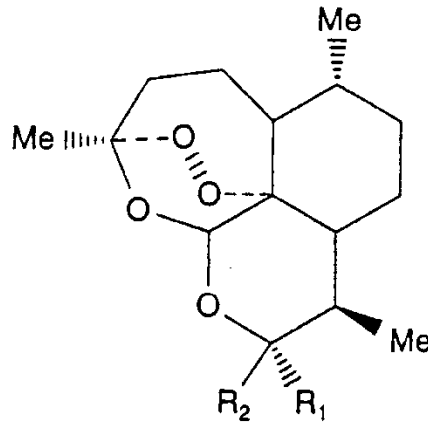
In the laboratory, artemisinin has been shown to kill the plasmodium faster than any other drug that has ever been known.



How does it work?

Artemisinin contains a “peroxide bond”

The two oxygen atoms react explosively with the iron in the parasite!



| | |
|------------------------------------|--------------------|
| $R_1, R_2 = O$ | Artemisinin |
| $R_1 = H, R_2 = OH$ | Dihydroartemisinin |
| $R_1 = H, R_2 = OMe$ | Artemether |
| $R_1 = H, R_2 = OEt$ | Arteether |
| $R_1 = H, R_2 = OCH_2C_6H_5CO_2H$ | Artelinic acid |
| $R_2 = H, R_1 = O_2CCH_2CH_2CO_2H$ | Artesunic acid |



**But artemisinin is
not the only anti-
malarial substance
in Artemisia ...**



anamed uses a rich whole extract, and not simply “poorified” artemisinin to treat malaria.

Why is *Artemisia annua* (whole plant extract) effective?

Because it contains compounds with.....

Antiplasmodial Activity:

CHRYSOSPLENETIN
CHRYSOSPLENOL-D
OLEANOLIC-ACID
QUERCETIN

Antimalarial Activity:

ARTEMETIN
ARTEMISININ
ASCARIDOLE
CASTICIN
CHRYSOSPLENETIN
CHRYSOSPLENOL-D
CIRSILINEOL
EUPATORIN
OLEANOLIC-ACID
QUERCETIN

Analgesic Activity (against fever):

ALPHA-AMYRIN
ALPHA-BISABOLOL
ASCARIDOLE
BETA-AMYRIN
BORNEOL
CAMPHOR
COUMARIN
MENTHOL
MYRCENE
P-CYMENE
QUERCETIN
SCOPARONE
SCOPOLETIN
THYMOL

Anticolitic Activity (against colic):

QUERCETIN

Antidiarrheic Activity:

CAMPHOR

Antiemetic Activity

(against vomiting):
CAMPHOR

Antipyretic Activity

(against fever):
ALPHA-BISABOLOL
BETA-SITOSTEROL
BORNEOL
MENTHOL

Antispasmodic Activity:

1,8-CINEOLE
ALPHA-BISABOLOL
ALPHA-PINENE
ALPHA-TERPINENE
APIGENIN
BETA-PINENE
BORNEOL
BORNYL-ACETATE
CAMPHOR
CARVACROL
CIRSILINEOL
GERANIOL
ISORHAMNETIN
KAEMPFEROL
LIMONENE
LINALOOL
LUTEOLIN
MENTHOL
MYRCENE
PATULETIN
QUERCETIN
SCOPARONE
SCOPOLETIN
TERPINEN-4-OL
THYMOL

Diuretic Activity (for

cleansing the body):
APIGENIN
FRIEDELIN
ISOQUERCITRIN
KAEMPFEROL
LUTEOLIN
OLEANOLIC-ACID
TERPINEN-4-OL

Immunostimulant

Activity:
ASTRAGALIN
COUMARIN
EUPATORIN

Mosquitocide Activity

(kills mosquitoes):
BETA-AMYRIN

Sedative Activity:

1,8-CINEOLE
ALPHA-PINENE
ALPHA-TERPINEOL
APIGENIN
ASCARIDOLE
BORNEOL
BORNYL-ACETATE
CARVONE
COUMARIN
CUMINALDEHYDE
GERANIOL
ISOEUGENOL
LIMONENE
LINALOOL
OLEANOLIC-ACID
P-CYMENE
STIGMASTEROL
THYMOL

Antithrombic Activity

(avoids blood clotting as in
cerebral malaria):
QUERCETIN



Taken from Dr. Duke's Phytochemical and Ethnobotanical Databases:
http://sun.ars-grin.gov:8080/npgspub/xsql/duke/pl_act.xsql?taxon=120

Artemisia tea is a whole plant treatment!

It contains artemisinin plus 19 other anti-malarial substances.

It is already a combination therapy!

Continue with part 2 of this series.

