

# African Traditional Herbal Research Clinic

Volume 1, Issue 7

NEWSLETTER

July 2006

## DDT Finally Linked to Human Health Problems

Emma Young

13 July 2001

Pregnant women exposed to the insecticide DDT are much more likely to give birth prematurely, or to full-term but low birth weight babies, says a US team. Although DDT is now banned in the developed world, it is still widely used elsewhere to combat malaria, particularly in Africa.

"One of the reasons this finding is important is there are not any generally accepted adverse health effects of exposure to DDT or its metabolite, DDE, in humans," says researcher Matthew Longnecker of the US National Institute of Environmental Health Sciences in North Carolina.

Longnecker analysed data on 2380 babies born in the US in the 1960s, when DDT was still widely used. He also measured the concentration of DDE, a metabolite of DDT, in blood samples taken from the mothers during pregnancy. His team found that the risk of premature birth or low birth weight rose with increasing

*Continued on page 2*

## What is the African Traditional Herbal Research Clinic?

*We can make you healthy and wise*

Nakato Lewis

**Blackherbals at the Source of the Nile, (U) Ltd.**

The African Traditional Herbal Research Clinic located in Bukoto, Uganda is a modern clinic facility created to establish a model space whereby indigenous herbal practitioners and healers can upgrade and update their skills through training and certification and respond to common diseases using African healing methods and traditions in a modern clinical environment.

Traditional healers are the major health labor resource in Africa as a whole. In Uganda, indigenous traditional healers are the only source of health services for the majority of the population. An estimated 80% of the population receives its health education and health care from practitioners of traditional medicine. They are knowledgeable of the culture, the local languages and local traditions.

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concentrations of blood DDE. A high blood DDE concentration was more strongly linked to prematurity than maternal smoking.

Premature babies account for a large proportion of infant deaths. If high DDT exposure really does cause prematurity, the insecticide could have accounted for 15 per cent of infant deaths in the US in the 1960s, Longnecker estimates.

"In earlier decades in the US, we may have had an epidemic of pre-term births that we are just now discovering," he says. "We have to be concerned about what might be happening in those 25 countries where DDT is still used."

DDT has been proven to have adverse effects on bird reproduction, in particular. Environmental groups have long campaigned for an international ban. But the insecticide is cheap and highly effective against the mosquitoes that spread malaria.

Last December, DDT was dropped at the last minute from an international treaty banning persistent organic pollutants. This followed heavy lobbying by countries who said DDT was essential for their anti-malarial programmes.

In some countries, such as South Africa, malaria-carrying mosquitoes have developed resistance to the alternative insecticide pyrethroid, which is also more expensive.

To date "there have been no proven adverse health effects on humans of spraying DDT," says Chris Curtis of the London School of Hygiene and Tropical Medicine.

Longnecker told **New Scientist**: "I wouldn't interpret our findings as meaning that DDT use should be stopped. But having evidence of adverse effects could influence a cost benefit analysis when deciding which agent to use for malarial vector control."

The average blood DDE concentration of the mothers in the study was 25 micrograms per litre. This is much higher than current US concentrations, says Longnecker.

His team controlled for a wide variety of factors known to be linked with premature birth, such as maternal smoking, ethnic group, sex and socioeconomic status.

Studies in mice have found that DDE blocks the binding of the hormone progesterone to its receptors, and in theory, this could cause both prematurity and low birth weight in humans, says Longnecker.

However, he adds there are other potential explanations

for these findings.

Journal reference: **The Lancet** (vol 358, p 114)

<http://www.newscientist.com/article.ns?id=dn1012>

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## Government Spraying Mosquitoes

**New Vision** (Kampala)

By Anne Mugisa

Kampala

June 16, 2006

The Government has started the national indoor residue spraying of mosquitoes to curb malaria, the Ministry of Health has said.

The drug being used, however, is not the controversial DDT, whose protective duration lasts a year, but another called ICON, which lasts four months.

The ministry also said African ministers of health are to meet next week in Brazzaville to revisit DDT use for malaria control.

The meeting will take place from June 21 to 23, according to Dr. Myers Lugemwa of the ministry's Malaria Control Programme.

The ICON spraying programme being carried out with the help of President Bush's Presidential Malarial Initiative is initially targeting 16 malaria epidemic areas, starting with Kabale district.

Lugemwa said other places would be handled after the epidemic areas.

He said yesterday the spraying started earlier this month in Maziba sub-county in Kabale and by June 19, the whole district will be covered.

Other districts classified under epidemic areas include Sironko, kapchorwa, Kisoro, Kanungu, Rukungiri, Mbale, Kabarole and Kasese.

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<http://allafrica.com/stories/200606190471.html>

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# Black People Worshiping Nature

By Nabamba Muwanga, Chairman NACOTHA

The power of African and Black people lies in worshipping and honouring Nature by practicing their traditional religions. Black people respect and honour the whole of Nature because they're an integral part of it since Nature possesses the pure living spirits of the Creator.

In this world we have sacred places, sites and nature objects where mankind goes to pay respect, honour and worship the Creator for blessings, guidance and direction in our lifestyles.

When living spirits descend on the earth, they take on forms which are visible to mankind. Living spirits are hosted even in non-living objects as indicated below.

## 1. Mountains or Hills

According to our ancestors, mountains or hills are believed to be the source of our cultural heritage. In Buganda, each clan possesses a mountain as a source of its ethics, e.g. Nagalabi at Buddo, where all Buganda Kings are crowned and installed. Living spirits are believed to originate from mountains from where they descend to different areas of the universe.

## 2. Rocks

These are found on mountains, in rivers, lakes with hosted spiritual forces. Many people visit these rocks to appease the spirits and other bad omens.

## 3. Caves

Sacred caves are believed to be shelters for spiritual forces-Emisabwa, e.g.

- Walussi in Luwero
- Kungu at Bombo
- Walumbe-Tanda in Mubende
- Kyeyitabya at Bukkasa
- Buyemba in Busoga

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*The traditional shrine as a symbol of our cultural history*

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4. The following forests are famous due to their spiritual powers believed to be centered there:

- Nakalanga Forest in Mukono
- Budondo Forest in Bunyoro
- Gulu Forest in Mukono and many others.

5. We have rivers with hosted spiritual forces located in different areas. For example:

- Zilimitti
- Mayanja -born by a woman in Buganda
- Kosota
- Sezibwa
- Lwajjali and others.

In Buganda, we have tribal clans which are derived from rivers. There exist twin rivers and also rivers known by female names.

## 6. Lakes

These water bodies combine the powers of Drubale and Misambwa. This is why you hear of people going underneath the lake looking for wealth.

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## Briefs

### Uganda to Use DDT to Fight Malaria

**Daily Monitor**  
**July 11, 2006**

Uganda will go ahead and use DDT to fight malaria that kills over 110,000 Ugandans annually, the Minister of Health, Dr. Stephen Malinga, has said. He was meeting the US Ambassador, Mr. Stephen Browning, at the ministry's headquarters on Friday. He said the World Health Organisation supports the use of DDT as a measure of combating malaria.

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### FEATURED ARTICLES

## DDT Will Damage Uganda's Organic Agricultural Exports

By Daniel Lukwago, Opinion

The Monitor (Kampala)

June 25, 2006

Uganda is one of the Sub Sahara African countries with the greatest potential for organic farming because her comparative advantage of having pollution free environment. Through organic farming, Uganda can benefit through promotion of organic agricultural products with high health content to international markets; penetrating the expanding organic products markets mainly in Western Europe and North America, where the consumers are prepared to pay a premium price of 20 percent and above the authentic organic label; promoting export-led growth in a manner that protects and sustains the environment; and enhancing poverty reduction by bringing on board small-holders who are organic producers.

Through promotion of organic farming, small holder farmers can learn the organic equivalents and apply them to raise productivity and quality of output for sale at premium prices, raising their incomes and reducing poverty. A good example is the organically grown cotton grown in Lira which sold to Phoenix in Uganda and exported to China with genuine organic label.

However, the Government Malaria Eradication Campaign based on the use of DDT against mosquitoes can adversely affect the country's organic farming potential. The proponents of DDT may urge that it's an effective tool for malaria control, as it was the case in 1960s in many developing countries; however, in most of those countries organic farming is no more. For Uganda to achieve its export led growth strategy, organic farming is the way to go. With the use of DDT, Uganda will cease to be a purely organic agricultural country.

The net effect of this will be borne by our poor farmers whose income entirely depends on organic farming.

Dichloro-diphenyl-trichloroethane (DDT) was first synthesised by a German chemist Othmar Zeidler in 1874. In 1939, Dr Paul Mueller independently produced DDT. Mueller found that DDT quickly killed most vectors. The use of DDT increased enormously on a worldwide basis after World War II. However, problems related to extensive use of DDT began to appear in the late 1940s.

According to Tony Prato, a Professor of resource economics and management at the University of Missouri-Columbia, just as Plutonium, DDT is as highly persistent and potent substance and very hazardous to living organisms even if used in minute doses.

The biological half-life of DDT is about eight years - it takes about eight years for an animal to metabolise half of the amount it assimilates. Although the build-up of DDT in environment can be reversed, it can take more than 15 years to break down in the environment. The use of DDT was banned in the US in 1973, although it is still in use in some other parts of the world.

DDT can cause human carcinogen- damages the liver, the nervous system, reduces reproductive success, can cause liver cancer and can damage the reproductive system. The use of DDT will increase the degree to which humans and ecosystems are exposed to the risk from pollution. For example, there is a health risk to humans who drink water with concentrations of DDT. This can impair human health, worker productivity decline, and cost production and provision of health service will rise. The government should support and build local knowledge of controlling malaria.

*The writer is a policy officer at Uganda Debt Network.*

<http://allafrica.com/stories/200606260486.html>

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### FEATURED ARTICLES

## Uganda Must Look for an Alternative to DDT

By Opiyo Oloya

July 4, 2006

There is a classic story of the Bedouin Arab, his camel and his tent. The shivering camel begs his master to allow him to put his nose in the warm tent, then asks to do the same with his front legs, then for his hump to enter the tiny tent, and finally, with complete disregard for his master's kindness, the beast kicks the man out from the tent altogether!

The advocates for DDT are akin to the camel in the story. They have just won a hard lobby to get the government of Uganda to initiate indoor spraying of the pesticide in the fight to eradicate malaria-carrying mosquitoes.

On Friday, health minister Dr. Stephen Malinga launched the Indoor Residual Spraying (IRS) at Maziba Primary School playground in Ndorwa East, Kabale district. Now, you would think that the advocates of DDT would be content, but you would be dead wrong. Their next big push is to get the government to agree to large scale outdoor spraying of DDT.

For example, last week in this paper, Professor Donald Roberts correctly pointed out that there is currently no known harm in using DDT within the confines of buildings to eradicate the deadly mosquitoes. Yet, the world respected scientist of tropical public health, also went on to say, "Additionally, environmental exposure to DDT does not cause birds to lay eggs with transparent membranes instead of hard shells." Here, Dr. Roberts is just flat out wrong.

The species most severely affected were raptors such as Peregrine Falcon, Bald Eagle, Osprey, and fish-eaters such as the pelican and some herons that underwent simultaneous population declines in the period when eggshells were abnormally thin and were either broken in incubation or failed to hatch.

Furthermore, in his book titled *Population Limitations in Birds* (Academic Press, 1998), Dr. Ian Newton demonstrates the clear link between pesticides and

pollutants and their impact on bird population.

In the book, he brings together 16 studies that demonstrated the demise of birds over large geographical areas as a result of pesticide use, and nine other studies showing the immediate effects of pesticides on bird numbers.

In addition, there are literally hundreds of other studies on the subject out there. Why, one asks, with so much research information available on the impact of DDT on some species of North American birds, would the good professor say something that he knows is patently untrue? The reason, as previously noted in this column, is that DDT is probably the most effective known pesticide against insects including malaria-causing mosquitoes.

Easy to manufacture, cheap and effective against most insects including the anopheles mosquitoes, which carry the deadly malarial parasites that kill millions every year, its widespread use in North America in the 1950s and 1960s is credited with eradicating malaria-carrying mosquitoes altogether. As well, research shows that wherever it is used, there is a tangible decline in malaria-related deaths.

The problem is that the dramatic effectiveness of DDT in North America came about precisely because of its large scale use, including aerial spraying over the environment in order to eliminate certain insects including the mosquitoes in their own breeding grounds in the swamps and stagnant waters. For example, in order to get rid of the gypsy moth, the US Department of Agriculture carried out aerial spraying of millions of acres in New York State in the 1950s, including Long Island. What's more, DDT was mixed with oil to make it stick to the trees. And, as noted above, there was a real environmental cost attached to the indiscriminate use of the pesticide.

American biologist Rachel Carson in her highly influential book *Silent Spring*, published in 1962, explains that many

*Continued on page 6*

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# Makerere Scientists Okay DDT

By Al-Mahdi Ssenkibirwa, Nakasero

The Monitor (Kampala), NEWS

<http://allafrica.com/stories/200606120718.html>

June 12, 2006

INDIGENOUS scientists and researchers have endorsed the use of DDT to fight malaria through indoor residual spraying. The position has been taken after the scientists carried out a study early this year in the Kigezi region in Western Uganda where DDT was sprayed in 1960s.

According to the researchers from Makerere University, there were no signs of its alleged perilous effects on the locals of which some still exist.

"We found out that locals' agro products are still sold to the European Union market," said Prof. Gabriel S. Bimenya of Makerere University Pathology Department who headed the team.

Beminya was briefing journalists about their progress on DDT research at Nommo Gallery , Nakasero on Thursday. The Chairman of the General Court Martial, Gen. Elly Tumwine, who has also volunteered to join the anti-Malaria fight through using DDT called the press conference.

The researchers said during the study, they tested people's urine, human blood, earthworms, soils, fish, beef, beans and other food stuffs from identifiable sprayed areas from living spray men and women more than 40 years ago.

Bimenya said they had finalised their findings on DDT and handed over the final report to President Yoweri Museveni.

When opening the 8th Parliament last Thursday, the President said he had received the report and Cabinet would soon study it.

Others on the research team were Prof. Wilson Byarugaba, Dr B.Byarubaga, Dr Myers Lugemwa and Mr Andrew Okwii.

For years, DDT use has suffered stiff resistance from the business community and environmental activists arguing that its application will attract a ban on the Uganda's exports entering the European market.

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*Continued from page 5 - Uganda Must Look for Alternative species of peregrine falcons, eagles, songbirds, brown pelicans, California sea lions and many fishes had dwindled to dangerously low numbers because of DDT poisoning.*

Consequently, Canada banned DDT use in 1969. Meanwhile, on June 30, 1972, the US Environmental Protection Agency banned the insecticide altogether.

Scientists in Canada and United States who painstakingly nursed the species back from the brink of extinction have since upgraded the peregrine falcon from endangered list after three decades of heroic effort.

Now, like the wily camel in the above story, the advocates of DDT know that so long as the pesticide is limited only inside homes and buildings, the bulk of mosquitoes will continue to breed out there.

They also know that DDT is the most cost-effective approach to eliminate mosquitoes in swamps and stagnant waters. Yet, they are also keenly aware that there will be fierce opposition worldwide to widespread environmental spraying of DDT.

Uganda, after all, according to Birdlife International, has one of the richest variety of birds in the world with 1062 species, including as many as 70 in the falcon family alone.

Naturally, by arguing that DDT has no demonstrated impact on birds, advocates like Professor Roberts can later argue for the large scale spraying of DDT. That's what was argued in the 1950s in North America with the catastrophic result still being felt today. Never again.

Uganda must continue to look for alternatives to eradicating mosquitoes without harming the environment. At the same time it must strengthen laws on outdoor spraying of DDT with hefty fines, and possible jail term for repeat violators.

<http://allafrica.com/stories/200607050930.html>

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*The (African) now stands at the cross roads of Human destiny. He is at the place where he must either step forward or backward. If he goes backward he dies, if he goes forward it will be with the hope of a greater life. Those of us who have developed our minds scientifically are compelled, by duty, to step out among the millions of the unthinking masses and convince them of the seriousness of the age in which we live."*

**Marcus Garvey**

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## America Helps in Fighting Malaria

By Pascal Niwebyona, Kampala

**New Vision**(Kampala), NEWS  
June 19, 2006

THE American government is to help Kabale district to spray homes against mosquitoes.

The district director of health services, Dr. Patrick Tusiime, said they were carrying out indoor residual spraying using ICON insecticide.

Spraying has started in Maziba sub-county but will cover all the 19 sub-counties in order to reduce the incidence of malaria.

The funds came from the President Bush Initiative on Malaria, a pilot programme that will roll-out to other highland districts.

He said at least five tones of the insecticide and equipment had already been procured and delivered to the district.

Tusiime said the spraying was being supervised by the Ministry of Health, United States Agency for International Development and implemented by RPI, an American company.

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<http://allafrica.com/stories/200606200723.html>

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## Makerere Scientists Did Not Okay DDT Spray

**Letters (to the Editor)**  
**Daily Monitor**, June 16, 2006

I was not surprised to read in the *Daily Monitor* of June 10 that "Makerere Scientists Okay DDT".

The article should have read "medical Doctors Okay DDT".

The doctors, who say DDT is okay are know institutional medical doctors that have never been exposed to the science and art of environmental impact assessment (EIA), whose primary goal is to carry out a comparative cost-benefit analysis of all available alternative actions in the environment and to consider

all available issues in a given human concern before a suitable alternative emerges.

In the said study in which the "State-desired alternative"-DDT, for fighting malaria was endorsed, we do not see a true EIA being done.

The medical doctors do their "scientific act" the way they have traditionally done it.

In their "scientific study" they do not reveal that serious, integrated and integrative EIA practitioners, who must necessarily grasp the environmental, health and social complexities in a more holistic manner, were at the centre of their (medical doctors) scientific act.

We are at the moment faced with the catastrophe of Lake Victoria, which will worsen with the construction of Bujagali dam.

In DDT re-use another human environmental catastrophe is looming in this country, courtesy of the shortsightedness and environmental bankruptcy of our shallow trained medical doctors turned environmental assessors.

This must surely be the price of underdevelopment, which will speed up "development in the reverse" or "de-development".

But someone out there should honestly tell me or give me the answer to this rather complicated question: Who cursed this Pearl of Africa?

Oh! Cry Uganda!

F.C. Oweyegha-Afunaduula  
Department of Zoology, Makerere University

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## Malaria Kills 320 Ugandans Daily

By Milton Olupot and Charles Ariko  
Kampala

**New Vision** (Kampala), NEWS  
June 26, 2006

UGANDA loses an average of 320 people daily to malaria, a symposium on the disease heard in Kampala yesterday.

Dr. Myers Lugemwa told a two-day symposium that malaria remains one of the most serious global health

*Continued on page 8*

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*Continued from page 7- Malaria Kills 320 Ugandans Daily*

problems and a leading cause for childhood morbidity and mortality.

The symposium, under the theme 'molecular biology and immunology in malaria vaccine development,' is organised by Makerere university and the university of California, San Francisco.

The Uganda Malaria Surveillance Programme and the African Malaria Network Trust are part of the organisers of the symposium that will be followed by a three-day workshop.

About 70 participants from about 20 African countries, the US and Europe are taking part in the symposium, focussing on malaria treatment, control and research.

Lugemwa said research had shown that malaria had killed half of the global population since the stone age.

A paper by Prof. Fred Wabwire and Dr. Adoke Yeka from the malaria surveillance project said resistance to the accessible and cheap drugs poses a threat to malaria control.

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<http://allafrica.com/stories/200606270313.html>

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## **Malaria Outbreak Hits Kabale**

**Robert Muhereza, Kabale**

**Daily Monitor  
July 5, 2006**

A malaria outbreak has been reported in Kabale district.

The Kabale Director of Health Services, Dr. Patrick Tusiime, has attributed the outbreak to an increase of mosquitoes in the region.

Addressing journalists in Kabale town on Friday, Tusiime said over 6,000 malaria patients were admitted at different health centres in the district in the previous week alone.

“This figure shows a real malaria epidemic in the district”, Tusiime said, thanking God for the mass mosquito-spraying programme that has been launched in the area.

“I appeal to the people to cooperate and open their houses for spraying.”

Residents have been rejecting the spraying team access to their homes, following a recent death of two students at St. Paul Seminary, shortly after their dormitories had been sprayed with ICON, a mosquito pesticide recently.

Tusiime said the deceased were allergic to ICON.

Medical personnel in the district are yet to decide whether people would first get diagnosed for allergies or use a different repellent to eradicate the mosquitoes.

Tusiime has called upon residents to visit health centres for medication, saying malaria drugs are available and free of charge.

Strong anti-malarial drugs; Homapack and Coartem are being supplied to patients in the region to contain the situation before it gets out of hand.

The doctor also advised the residents of the area to use treated mosquito nets to shield away the parasite.

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## **New Malaria Drugs Launched**

**Daily Monitor  
May 30, 2006**

New malaria drugs, Lumartem and Falcimon Kit have been introduced in Ugandan. Lumartem is a therapy of Artemether and Lumefantrine whereas Falcimon kit combines Artesunate and Amodiaquine tablets. Officiating at the launch on Thursday, the Director of Health Services, Mr. Sam Okware, said the new drugs would replace old anti-malaria drugs that have been proven ineffective.

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## Nema Denies Sanctioning DDT

By Gerald Tenywa  
Kampala

New Vision (Kampala)  
NEWS  
June 20, 2006

THE National Environment Management Authority (NEMA) has denied sanctioning the use of DDT in the campaign to control malaria.

In an interview yesterday, NEMA Executive Director Dr. Aryamanya Mugisha said the proposed spraying of DDT by the Ministry of Health would not be cleared until an environment impact assessment (EIA) is taken.

Mugisha said they had ordered the ministry to undertake an EIA last year and that NEMA is still waiting for the report.

Dr. Sam Okware, the acting director in charge of clinical and community health, reportedly said NEMA had cleared indoor spraying of DDT.

"As far as NEMA is concerned, we are yet to receive the EIA report and it is not true that we have approved spraying of DDT," said Mugisha.

He said NEMA's understanding was that a consultant was supposed to undertake the study and provide an EIA statement in one month.

However, Okware said the EIA report dated August 2005 was still with the health ministry and that it would soon be submitted to NEMA.

EIA is a study undertaken to find out the likely environment effect of a proposed activity and to suggest mitigation measures.

The EIA statement was supposed to assess the risks associated with the use of DDT to humans and the environment.

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<http://allafrica.com/stories/200606210331.html>

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## Nebbi Residents Use Mosquito Nets to Make Kwete

By Warom Felix Okello

The Monitor (Kampala), NEWS  
June 24, 2006

Residents of Erussi sub-county in Nebbi have turned treated mosquito nets into sieves.

They use them to squeeze a local brew called kwete.

The District Health Inspector, Mr Anthony Andrionzi, said the practice had frustrated efforts by the health team to fight malaria in the district.

"People in Erussi are now using mosquito nets for squeezing kwete. This is being crazy," Andrionzi told Daily Monitor last week.

He said the Ministry of Health recently distributed the mosquito nets to the residents.

"The nets were distributed to pregnant mothers with the aim of preventing malaria infection," he said.

Andrionzi said according to a 2005 survey, 75 per cent of the residents in the area do not use mosquito nets.

"Most of our people don't value the use of mosquito nets yet there is an alarming rate of malaria infections in the country," he said.

"This is embarrassing and poses a challenge to the health sector and the community."

He warned that people risk suffering from unknown disease, saying the chemicals used to treat the nets are dangerous to human health.

Andrionzi called upon local leaders to mobilise and sensitise the residents on the importance of using treated mosquito nets. He called upon residents to change their attitude towards use of the mosquito nets.

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<http://allafrica.com/stories/200606230879.html>

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### FEATURED ARTICLES

## Adverse Health Effects of Insecticides presently used in Malaria Control and Some Herbal Alternatives

By Nakato Lewis, Editor  
Blackherbals at the Source of the Nile, (UG) Ltd.

Insecticides like pesticides are chemical or biological substances used to kill or repel targeted organisms. All pesticides are poisons. In many cases they are designed to impact the immune, reproductive, or nervous system of insects. However, many concerns exist over the safety of present day insecticides/pesticides. For example, Lambda-cyhalothrin (Trade name: ICON), recently introduced to Sri Lanka as an indoor spray against malaria vector mosquitoes, is a potent, synthetic, type II pyrethroid. It is being used to control malaria here in Uganda. The ICON spraying programme, carried out in Uganda with the help of President Bush's Presidential Malarial Initiative, initially targeted 16 malaria epidemic areas in Uganda, starting with the Kabale district.

Pyrethrins are natural insecticides produced by certain species of the chrysanthemum plant. The flowers of the chrysanthemum plant, harvested shortly after blooming, are dried and powdered or the oils within the flowers are extracted with solvents. The resulting pyrethrin, containing dusts and extracts, usually have an active ingredient content of about 30%. These active insecticidal components are collectively known as pyrethrins. Two pyrethrins are most prominent, pyrethrin-I and pyrethrin-II.

Pyrethrin compounds have been used primarily to control human lice, mosquitoes, cockroaches, beetles and flies. Other pyrethrin compounds may be used in grain storage and in poultry pens and on dogs and cats to control lice and fleas.

These natural pyrethrins are contact poisons which quickly penetrate the nerve system of the insect. A few minutes after application, the insect cannot move or fly away, but does not necessarily kill the insect. The natural pyrethrins are swiftly detoxified by enzymes in

the insect. Thus, some pests will recover. To delay the enzyme action so that a lethal dose is assured, organophosphates, carbamates, or synergists may be added to the pyrethrins.

The term "pyrethrins" refers to the natural insecticides derived from chrysanthemum flowers, "pyrethroids" are the synthetic chemicals, and "pyrethrum" is a general name covering both compounds. Semi-synthetic derivatives of the chrysanthemumic acids have also been developed as insecticides. These are called pyrethroids and tend to be more effective than natural pyrethrins which tend to be less toxic to mammals. Pyrethroids are in a huge array of pesticide products which are routinely applied both indoors and outdoors. Mosquito spraying pesticides are only a tiny part of the pyrethroid picture.

Pyrethroids are also in hundreds of products that we come in contact with every day. For example, to keep flies and other biting insects away, a Greensboro, N.C.-based apparel company patented a way to bind a repellent to clothing. Using the trade name "Buzz Off", permethrin is a man-made version of a substance found naturally in chrysanthemums. The repellent-treated apparel is supposed to survive 25 trips through the washer. Many other textile manufacturers however, have been using pyrethroids for years to cut down on the possibility of insect damage to goods prior marketing. **Pyrethroids are now routinely impregnated into clothing and other textiles such as mosquito nets, which cannot be washed-out, even after 25 or more washings.**

Pyrethroids are in many other products such as inks, paper, food containers, etc. These products off-gas and are absorbed across the skin barrier (in our case, melanin) and through the gut. Most consumers don't have a clue that they are being continually exposed to low levels of these chemicals.

*Continued on page 11*

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### *Con't from page 10-Adverse Health Effects of Insecticides*

Synthetic pyrethroid compounds vary in their toxicity as do the natural pyrethrins. Allergic rhinitis, conjunctivitis, and asthma have been reported following human exposure to pyrethrins. Rare but potentially severe reactions following direct dermal or respiratory exposure to pyrethrins include hypersensitivity, pneumonitis, nonfatal and fatal shock reactions.

Although allergic contact dermatitis and asthma due to pyrethroids have been alleged, they have not been well documented. Unique skin ailments, manifested by numbness, itching, burning, tingling, and warmth, and often described as a sensation of insects crawling on the skin, have also been described following exposure to certain pyrethroids.

Based on occupational studies, mild acute exposure may result in dizziness, headache, nausea, anorexia and fatigue. At high doses, such as when workers have been soaked with concentrated pyrethroids, or after intentional ingestion, the following symptoms have been reported: loss of bladder control, seizures, muscular spasms, convulsions, pulmonary edema, and coma.

Since the 1930's, pyrethrum has been known to cause allergies, asthma, and respiratory irritations. Inhaling high levels of pyrethrum may bring about asthmatic breathing, sneezing, nasal stuffiness, headache, nausea, incoordination, tremors, convulsions, facial flushing and swelling, and burning and itching sensations).

Pyrethrum and pyrethrin products, like ICON, are typically formulated with piperonyl butoxide (PBO), a synergist that reduces the ability of both insects and humans to detoxify pesticides. The most severe poisonings have been reported in infants, who are not able to efficiently break down pyrethrum.

ICON is a stomach, contact and a residual insecticide. It acts as a neurotoxin and interferes with nerve membrane function. In addition, these pyrethroids increase the spontaneous release of neurotransmitters such as GABA, dopamine or noradrenaline and may also act as a hormone (endocrine – thyroid/reproductive) disruptor.

Recent research studies on white mice have shown that ICON causes a marked, although a transient inhibition of sexual competence *par se*. This is a novel finding, which indicates a possible risk of sexual dysfunction in ICON-exposed men and poses a potential threat to sexual competence thorough loss of libido and inhibition of sexual performance (erectile dysfunction), as proper

erection is essential for proper vaginal penetration. Irrespective of the dose, the anti-masculine effect had a rapid onset, however, the severity of the effect decreased with repeated administrations. In these mouse studies, no effects on ejaculatory competence, sperm quality or fertility were noted.

The facts and recent research studies collectively suggest that ICON may disrupt the human male reproductive function, but this has not been experimentally documented. Several currently used pesticides, especially those having endocrine disruptive properties, are known to adversely impair reproductive competence of males under laboratory, field, clinical or occupational settings. Some of these agents are among the most commonly used.

### **Herbal Solutions**

Botanicals are a promising source of pest control compounds. The pool of plants possessing insecticidal substances is enormous. These have generated extraordinary interest in recent years as potential sources of natural insect control agents. Today over 2000 species of plants are known that possess some insecticidal activity. The first insecticides to be used by man were from plants, the biological activities of which were known from the earliest recorded times.

Several mosquito species belonging to genera *Anopheles*, *Culex* and *Aedes* are vectors for the pathogens of various diseases like malaria, filariasis, Japanese encephalitis (JE), dengue and dengue haemorrhagic fever, yellow fever, etc. Thus one of the approaches for control of these mosquito-borne diseases is the interruption of disease transmission by killing or preventing mosquitoes to bite human beings.

Herbal products with proven potential as insecticide or repellent can play an important role in the interruption of the transmission of mosquito-borne diseases at the individual as well as at the community level. Some herbal products such as nicotine obtained from tobacco leaves, *Nicotiana tabacum*, rotenone from *Derris elliptica*, and pyrethrins from *Chrysanthemum cinerifolium* flowers have been used as natural insecticides, even before the discovery of synthetic organic insecticides.

However, the discovery, development and use of synthetic organic chemicals with persistent lingering action not only overshadowed the use of herbal products against mosquitoes but also became the major weapon for mosquito control. Since the discovery of DDT, mosquito

*Continued on page 12*

control approach has been almost completely based on synthetic organic insecticides. But the extensive use of synthetic organic insecticides during the last five decades, have resulted in environmental hazards and also in the development of physiological resistance in major vector species. This has necessitated the need for search and development of environmentally safe, biodegradable, low cost, indigenous methods for vector control, which can be used with minimum care by individual and communities in specific situations.

Phytochemicals obtained from plants with proven mosquito control potential can be used as an alternative to synthetic insecticides or along with other insecticides under the integrated vector control. Plant products can be used, either as insecticides for killing larvae or adult mosquitoes or as repellents for protections against mosquito bites, depending on the type of activity they possess. A large number of plant extracts have been reported to have mosquito-killing or repellent activity against mosquito vectors, but very few plant products have shown practical utility for mosquito control. Plant products can be obtained either from the whole plant or from specific part by extraction with different types of solvents.

Considering the large number of plants that are reputed to possess some form of insecticidal activity, it is a pity that only a few have been scientifically evaluated. Though many plants have been shown to possess activity against mosquitoes, most of these reports are based on laboratory observations only. Products of some plants are effective at very high concentrations and thus may not be of much practical importance. However, indigenous plant based products are very promising against mosquitoes and can be used as insecticides and/or repellents. They offer a safer alternative to synthetic chemicals and can be obtained by individuals and communities easily at a very low cost.

### **Neem**

Native to both India and Africa, one of the most commonly studied plants for control of mosquitoes is *Azadirachta indica* (Meliaceae) commonly known as Neem in India. Neem contains at least 35 biologically active principles, of which azadirachtin (AZA), is the predominant insecticidal active ingredient in the seeds, leaves and other parts of the tree. Neem products containing AZA and other ingredients have anti-feedant, repellency, growth disruption, sterility and larvicidal action against insects. Neem-based pesticides are now extensively used in agricultural practices all over

the world. Some Neem oil and other derivatives of neem can be used alone or in combination with other products for effective protection against mosquitoes.

The neem products can also be used for control of mosquito breeding under integrated disease vector control programme in various situations. Neem oil and other commercial preparations of Neem have been found as potential mosquito larvicide. Control of mosquito breeding has also been demonstrated in the field in some confined habitats using indigenous methods of application of Neem oil in water, burning of Neem oil and Neem oil coated on wooden scraps.

Traditionally, and without the enlightened scientific approach, many communities had developed the knowledge that hanging leaves of certain plant on doorways, or burning certain plants and cow dung were effective deterrents against mosquitoes. For instance, the Kamba, Swahili and Luo communities had identified such plants as mwenye, mukandu and kirumbasi as effective fumigants. By hanging branches from the trees on doorways and on windows, they were able to prevent mosquitoes from entering their dwellings. Today, the Swahili people still burn Kirumbasi in small jikos to produce mosquito-repelling incense.

Besides, herbal derivatives of *Lantana camara*, *Cymbopogon* spp., *Mentha piperita*, *Eucalyptus* spp., *Tagetes minuta*, *Dalbergia sisoo*, etc. have also shown repellency effects against different mosquito species and can be used for personal protection against mosquitoes by individuals, thus minimizing the dependency on synthetic chemicals. Similarly, certain other plant derivatives obtained from *Tagetes* spp. *Citrus* spp., *Solanum nigrum*, *Ageratum conyzoides* (Compositae) *Annona squamosa* (Annonaceae) have also shown insecticidal and/or growth inhibition activity against mosquitoes but their potential for mosquito control under field conditions needs to be evaluated.

These plant derivatives are probable sources of some biologically active agents for mosquito control in the future. The use of indigenous plant-based products by individual and communities can provide a prophylactic measure for protection against various mosquito-borne diseases. There is a need for promoting the use of herbal products through community-based vector-control programme.

*Nakato Lewis is the editor of the African Traditional Herbal Research Clinic Newsletter and the editor and webmistress of*

[www.blackherbals.com](http://www.blackherbals.com).

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## DDT 'link' to Slow Child Progress

5 July 2006

**Children exposed to the pesticide DDT while in the womb experience development problems, researchers say.**

The pesticide was banned in the US and UK in the 1970s, but it is still used in some countries to kill malaria-carrying mosquitoes.

It was already known DDT was linked to premature births and low birthweight.

The University of California Berkeley researchers say their findings, published in *Pediatrics*, should be borne in mind when addressing malaria.

DDT, an organochlorine, persists in the environment long after use, accumulating in the food chain and in fatty tissues of animals and humans.

Over time, it degrades into DDE and DDD, which have similar chemical and physical properties.

Thirty-three years after its use was banned in the US, DDT is still detectable in about five to 10% of people, while DDE is detectable in nearly everyone.

### **Breastfeeding protection**

The UC Berkeley researchers measured blood levels of DDT and one of its breakdown products, DDE, in 360 pregnant women, the majority of whom were born in Mexico, where agricultural use of the chemical was only banned in 2000.

Factors including age, income, education, marital and work status, the child's gender, duration of breastfeeding and the quality of the home environment for young children were considered.

The researchers tested the mental and physical skills of the women's babies at six, 12 and 24 months using established tests to measure the children's development.

For each tenfold increase in DDT levels measured in the mother, the team found a corresponding two to three-point decrease in the children's mental development scores at 12 and 24 months.

Children with the highest DDT exposures in the womb were associated with a seven to 10-point decrease in test scores, compared to the lowest exposures.

When the children's physical skills were measured, there were two-point decreases in children's scores at six and 12 months for each tenfold increase in DDT levels in the mothers.

Similar, but weaker effects, were linked to DDE exposure.

The team also found that the longer babies were breastfed for, the better they scored on the developmental tests - even though they would have been exposed to DDT through the milk.

### **Chemical delivery**

Dr Brenda Eskenazi, who led the research, said: "People need to consider these data if they are going to continue using DDT or reintroduce it in countries where it's been banned.

"Given the impact of malaria on child health, I'm not saying that we shouldn't use it.

"But if we do, we need to think of ways to protect women and children."

The researchers plan to continue to follow the children as they develop.

Professor Richard Sharpe, of the Medical Research Council's Human Reproductive Sciences Unit in Edinburgh, said: "The older the woman before her first breastfeeding episode and the longer and the higher her DDT exposure has been, the greater will be the amount of chemical delivered to the baby.

"So the first baby gets the worst of the chemicals stored in the mum's fat.

"There may also be a bonus to the mum in that she is ridding herself and her fat tissue of the chemicals in question and because some of these chemicals are potentially implicated in the development of breast cancer - the breast is mainly fat.

"This could be one of the ways in which early breastfeeding protects against breast cancer."

<http://news.bbc.co.uk/2/hi/health/5145450.stm>

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## Mission Statement

Our aim at **The African Traditional Herbal Research Clinic** is to propagate and promote the awareness in Afrikan peoples at home and abroad of their health, biodiversity, history and cultural richness. We gather pertinent information on these issues and disseminate these freely to our people in Uganda, the rest of the continent, and anywhere in the Diaspora where Afrikans are located.... One of the main ingredients for increasing poverty, sickness, exploitation and domination is ignorance of one's self, and the environment in which we live. Knowledge is power and the forces that control our lives don't want to lose control, so they won't stop at anything to keep certain knowledge from the people. Therefore, we are expecting a fight and opposition to our mission. However, we will endeavor to carry forward this work in *grace and perfect ways*.

***"Where there is no culture, there is no indigenous knowledge. Where there is no indigenous knowledge, there is no history. Where there is no history, there is no science or technology. The existing nature is made by our past. Let us protect and conserve our indigenous knowledge."***

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## CALENDAR OF EVENTS

SPECIAL EVENT: CLINIC OPENING

PLACE: AFRIKAN TRADITIONAL HERBAL RESEARCH CLINIC

Time: Now Open

**Afrikan Traditional Herbal Research Clinic**

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**Bukoto, Kampala, Uganda East Africa**

**Phone: 041 530 456**

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ADDRESS CORRECTION REQUESTED

## Herb of the Month

**Neem**

*Azadirachta Indica*

**PARTS USED:** Leaves, Seed, Fruit, Bark, Roots

**MEDICINAL ACTIONS:** Anti-inflammatory, Anti-pyretic, Anti-histamine, Anti-fungal, Anti-bacterial, Anti-ulcer, Analgesic, Vasodilator, Anti-malarial, Diuretic, Spermicide, Anti-arthritis, Insect repellent, Anti-feedant, Anti-hormonal

In Swahili the Neem tree is known by the name "Mwarobaini" which means forty trees, because it supposedly makes medicines to treat 40 different diseases. The Neem tree's history goes back a long way, with indications it was used in medical treatments about 4,500 years ago. There is evidence found from excavations at Harappa, and Mohenjo-Daro in Northwestern and western India, in which several therapeutic compounds including Neem leaves, were gathered in the ruins. Among the treatments are an infusion from the leaf and fruit to treat eczema. An extract from the wood relieves asthma symptoms. The leaf extract is used to treat fever and the powdered root bark is applied to a toothache. The hedges of the Neem tree are grown close to houses in Central and Eastern Africa because the plant is highly esteemed for combating malaria. The oil from the seed is applied to treat wounds, sores and cuts. The oil can also be used as a mosquito and insect repellent. Insect repellent: one neem compound is a more effective insect repellent than the widely used synthetic DEET. It is non-toxic to animals, birds, beneficial insects or man and protects crops from over 200 of the most costly pests. The dried flowers are used as a tonic for stomach aches. In Kenya research at herbal clinics has found that when consumed daily can be effective in treating ulcers, pneumonia and other chest related ailments. ? ? ? ?

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