

Lucerne Leaf Concentrate (LLC)

**A simple and effective solution for malnutrition that is also, possibly,
of importance for those suffering from AIDS**

March 2008

Trials already carried out have shown that LLC can improve the quality of life of sufferers of AIDS, whether they are already benefiting from antiretroviral treatment or are among the far greater number who, unfortunately, may yet have to wait a long time for it.

From 1960–90 British scientists and doctors developed in India, Africa and Latin America the idea of supplementing inadequate diets with “protein concentrates” derived from green leaves. In spite of the extraordinarily beneficial results seen on the physical growth and health of the malnourished, particularly the children, this project failed to take root because the extraction methods employed yielded only a few kilos a day, rather expensively. The British were able, however, to demonstrate the importance of this new nutritional product if only it could be made more cheaply.

In 1975 the agricultural co-op, France Luzerne, specializing in the production of dried forage, started industrial production of leaf concentrate, from Lucerne, as a feedstuff.

In 1993 several former officials of France Luzerne took up the British idea, modifying somewhat the industrial concentrate for human consumption and they founded APEF (Association pour la Promotion des Extraits Foliaires en Nutrition).

Today, APEF operates in more than 20 countries with more than 50 million daily portions already having been distributed. The records and remarks of the charitable bodies who distribute the Lucerne Leaf Concentrate (LLC) and the surveys and medical reports of the local officials are unanimous in noting the rapid improvement in the general condition of those supplemented:

- Pregnant or nursing mothers
- Infants from the start of weaning
- Even severely malnourished children, with anaemia and/or kwashiorkor and marasmus
- Sufferers of HIV/AIDS, malaria or tuberculosis, where the LLC is used as a nutritional adjunct to specific treatment. The same for is true for those with leukaemia.
- The elderly

Negative side-effects are rare and involve only transitory digestive troubles at the outset of the introduction of LLC.

The cost of this supplementation is very low. The daily dose is from 5 – 10 g/day for a child and from 10 – 15 g for a mother, i.e. 2 – 6 Kg/year. The cost of production in France is 1 €/Kg.

Even with transport costs, and depending on the country, the cost is still very low:

3 – 9 euros per person per year.

Scientific validation

APEF wants to confirm the results reported from the centres of distribution. Four studies have been undertaken, in Peru, the Democratic Republic of the Congo and in India, by Professor Eric Bertin, nutritionist at the University of Reims and co-ordinator of APEF’s Scientific Committee.

In 3 of the studies (2 in Peru and 1 in Kinshasa) two groups of children were compared, one being supplemented with LLC, the other with powdered milk. In all three cases, the LLC was markedly better than the powdered milk.

The fourth study, in Jaipur (India), compared the bio-availability of the iron in LLC with that of the classical pharmaceutical treatment for iron-deficiency anaemia. The result, based on this sole criterion, was identical even though the daily dose of iron was 4 mg from the LLC and 60 mg from the pills.

In these four studies no negative effect attributable to LLC was observed either in the clinical examinations or in the biological marker monitoring (transaminases & creatinine).

LLC and AIDS

While our usual activity is the balancing of deficient diets, several doctors have notified us of astonishing results, here and there, with their seropositive patients. We wanted to verify this.

We have completed the first studies of the impact of LLC on seropositive patients, observing those with and without LLC. In Cameroon, there are 30 adults in the study, none of whom is receiving antiretroviral (ARV) treatment, whilst in Burundi there are 45 HIV+ children, from 9 to 14 years old, who **are** undergoing ARV treatment.

The results support each other and are very encouraging. The clinical and biological tests show an increase in weight, level of blood haemoglobin, lymphocytes CD4 and CRP (C-Reactive Protein), accompanied by the reduction or disappearance of cases of diarrhoea, fever, respiratory problems and skin lesions. In both studies, the Control Group remained relatively unchanged, or grew slightly worse, in spite of their receiving (as does the Treatment Group) a daily addition to their diet of 500g of rice.

It seems that LLC quickly restores some upsets of the auto-immune system associated with malnutrition (shortage of one or more macro- or micronutrients). LLC's range of amino-acids, vitamins, minerals and fats is already known to alleviate many of these deficiencies. Such restoration of nutritional status rapidly improves the quality of life of people with AIDS (as, indeed, with other pathologies).

Lucerne leaf concentrate: a simple, effective and low-cost solution for malnutrition!

The current solutions to alleviate malnutrition are few in number, always expensive even present the problem of overwhelming the agricultural resources of the planet. And the solutions proposed get further and further away with the continual growth in the world's population.

The new concept of leaf concentrate provides a simple, effective, low-cost and permanent solution to the dietary imbalances of malnourished populations.

And in cases of AIDS?

The studies undertaken to date show that LLC can improve the quality of life of those suffering from AIDS, whether they are already benefiting from antiretroviral treatment or are among the far greater number who, unfortunately, may yet have to wait a long time for it.

The results observed are encouraging. But we would like to have scientific studies to confirm definitively what we are seeing at the moment. The core rôle of APEF is malnutrition. We call on Governments, NGOs and organizations specialising in the fight against AIDS to pick up the baton and get these trials done!

For further details, please see our website: <http://www.nutrition-luzerne.org>