

## Letters to the Editor

### *Leaf concentrate. Undernutrition. UN food aid policies* **The greatest untapped food resource on earth?**

Madam

You recently published a letter from John Waterlow FRS on leaf concentrate, ‘whose benefits for undernourished children – and adults – are potentially immense’<sup>(1)</sup>. Leaf concentrate is rightly known as ‘the greatest untapped food resource on earth’. With many colleagues throughout the world, I attest to its efficacy: I have seen for myself its impact particularly on child health in Africa, Asia and Latin America.

The purpose of this letter is to ask why the United Nations agencies whose duty is to treat and prevent undernutrition, continue to ignore leaf concentrate.

Here is the testimony of the nutritionist Sister Luci Morren, who works with impoverished communities in Nicaragua. The French charity L’Association Pour La Promotion des Extraits Foliaires en Nutrition (APEF), with whom I work, has many other testimonials, together with results from professionally supervised small field trials.

Sister Luci reports that with leaf concentrate, ‘appetite improves, people are less tired, more energetic, iron-deficiency anaemia is resolved, skin problems subside, sometimes vision improves, coughs clear up, as do headaches and insomnia. Respiratory infections become less severe and less frequent, as do other ailments. Mothers are less fatigued in pregnancy, give birth to bigger, heavier babies, and recover more quickly after their confinement. Those who breastfeed have more milk and so are able adequately to feed until weaning, while their children gain weight normally’.

My own association with leaf concentrate goes back half a century. As an engineer, in 1958 I joined the team formed by Norman Pirie FRS in the UK at the Rothamsted agriculture research centre, and for the next 14 years developed the process for extracting leaf concentrate (then known as leaf protein) as a cheap, available and effective food supplement<sup>(2)</sup>. Ever since then, I have been involved in efforts to introduce and popularise leaf concentrate.

For the last 15 years APEF has been distributing leaf concentrate in twenty countries within four continents. Up to now, more than 60 million 10-gram daily portions of concentrate have been extracted from alfalfa, also known as lucerne (*Medicago sativa*). Many other leaves that are rich in protein, carotenoids, iron, and many other micronutrients and bioactive compounds, are also excellent bases for concentrate.

Just over three years ago, at a meeting in Geneva, the head of the department of Child and Adolescent

Health and Development pledged that she would send a representative to investigate the claims made. She asked for details of some current projects to choose from and was given five in three continents. She chose Burkina Faso, where for several years the French charity Enfants du Monde had been giving leaf concentrate to thousands of children in a community where gangrene of the mouth (*Cancrum oris*) is endemic. They observe that this awful affliction is eliminated in the treated population.

The WHO regional representative’s office is in Ougadougou, about 200 kilometres from the project site. His arrival is still awaited. We have kept WHO informed of our work since that meeting three years ago. We sometimes receive acknowledgements, but never substantive replies. Why?

Sister Luci Morren says: ‘But who in authority takes any notice? Nobody. Maybe for the politicians the improvement of public health by including leaf concentrate in the food supply seems too easy, too simple by far. Such a solution scarcely fits in with the vast food programmes financed by millions of dollars from the World Bank or International Monetary Fund. No, it is not worth bothering about!’

‘Meanwhile, the number suffering brain damage, the weakening of their faculties and inability to help in their country’s development goes on growing, here in Nicaragua, and also in more than a third of the world’.

Our own witness, and the many testimonies we and other civil society organisations have received, are anecdotal accounts. They should prompt controlled trials whose expense is far beyond the resources of small charities. But it seems that no funding body is interested. Meanwhile we work on.

In John Waterlow’s words, leaf concentrate is ‘one example of an initiative that is plausible, simple and sustainable, and which, like undernutrition itself, is neglected. In either case I can think of a number of reasons why this is so, but I cannot think of a good reason’.

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### References

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2. Pirie N (1987) *Leaf Protein and its By-Products in Human and Animal Nutrition*, 2nd revised ed. Cambridge: Cambridge University Press (first edition published 1978).