

# MOLAB Ltd.


Consulting Analytical Chemist & Food Technologist.



May 19, 2004

Mr. Gary J. Raser, President  
The Limu Company  
610 Crescent Executive Court, Suite 110  
Lake Mary, Florida 32746  
USA

Dear Mr. Raser,

Molab Ltd. was engaged by The Limu Company via  their manufacturer of Limu Extract, to examine the comparative Fucoidan contents of its Original Limu product and compare it to Vita Corp's Limu Plus. The results of the laboratory analysis are summarized below.

The examination was carried out on samples drawn by Molab from unopened bottles of the following products:

Sample (1) Original Limu  
Sample (2) Limu Plus

## Fucoidan Analyses:

<u>Sample</u>	<u>Fucoidan Content</u>
(1) Original Limu	0.14 gms/100 mls
(2) Limu Plus	0.005 gms/100 mls

## Microscopic Examination:

### (1) Original Limu

This product contained a large number of broken spirulina spirals. On staining with selective stain soluble material giving the same reaction as fucoidan was precipitated.

### (2) Limu Plus

No insoluble material which could be identified as seaweed cellular matter by morphology was found. With selective staining a few rare particles which gave the same staining reaction as fucoidan were found. These appeared to be irregularly shaped broken fragments of insoluble material.

**Comments:**

The microscopic examination confirms the fucoidan analyses.

- (1) The analysis indicates that the Original Limu has a fucoidan content in excess of twenty-five times that of the Limu Plus.
- (2) The microscopic examination indicates that the sulphated polysaccharide present in the Limu Plus sample is in an insoluble form and hence would be of a much lower bioavailability.

The test procedure used, Methylene Blue precipitation, is one of the standard methods used for specifically determining sulphated polysaccharides, in this case Fucoidan. The procedure is used by Molab for seaweed extracts and seaweed products.

Yours Faithfully,

A handwritten signature in black ink, appearing to read 'R.H. Molony', written in a cursive style.

R.H.Molony MNZIFST. RSCCAC