Customer Profile | BIOTRON LABORATORIES INC.

Canadian Light Source / Centre canadien de rayonnement synchrotron

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Establishing the Nutrient Efficacy of Supplements

The president of Biotron Laboratories, Inc., a scientist with a Ph.D. in molecular genetics, had indirect scientific evidence that his company's mineral supplements were nutritionally superior to those on the market. Often derived from inexpensive inorganic salts, conventional supplements can cause stomach upset and be poorly absorbed by the body. In the nutritional industry claims are sometimes inflated, prompting Gameil Fouad to wonder if there might be direct scientific evidence to back his company's claims of a unique mineral processing technique.

To probe these materials at the atomic level, Biotron approached the Canadian Light Source. Previous experiments commissioned by the company had shown Biotron's mineral supplements, delivered in a form closely approximating those found naturally occurring in foods, were indeed better-tolerated - and marginally better-absorbed, than conventional supplements consisting of inorganic mineral salts.

"The real proof is to pinpoint what's going on the atomic scale," Fouad says. "We approached the CLS because they have the expertise and the equipment to evaluate heterogeneous materials like ours. It's very expensive to do proper science, and without tools like the CLS our project would have been virtually impossible."

Biotron wanted to know if there were indeed chemically detectable differences between the inorganic salt-based products and their mineral amino acid chelates. It is known that the former products- inorganic compounds like zinc oxide- aren't well-absorbed, Fouad says, because the body doesn't recognize the zinc as a usable form.

To examine this difference CLS scientists commissioned by Biotron used the Hard X-ray Micro-Analysis beamline, which can probe deeply into the atomic dimensions of matter, to study the bonding energies of the two forms. Such exploration indeed revealed a significant difference between the bonding energies of the iron in ferrous sulphate-based supplements and of the organically-bound iron in Biotron supplements. The same was true of Biotron's chromium and copper products.

"This was a critical piece of the puzzle," Fouad says. "We had some indirect chemical evidence and plenty of anecdotal stories, but without the help of the CLS we really couldn't say that our process is unique, or have the confidence to say, 'Yes, absolutely a reaction does takes place, and it's both robust and detectable.'"

When taken into consideration with the results of clinical trials commissioned separately by the company, the evidence helped Biotron make the case that their products, first developed by Dr. M.T. Fouad in 1971, are indeed better-tolerated by the body than conventional supplements. "The outcome was positive, so naturally I'm even more excited about it," says Gameil Fouad. "But even if the outcome had been negative, it would still have been a happy and productive collaboration, because they made the process so easy."

Gameil T. Fouad, President