"AQUANOVA nanotech extends CoQ10 uses, bioavailability"

(Source: NUTRAingredients.com, January 24, 2006)

AquaNova nanotech extends CoQ10 uses, bioavailabilty

By Jess Halliday

24/01/2006 - **Coenzyme Q10 (CoQ10) has hit the radar screens of functional food, supplement and cosmetic formulators in recent years thanks to positive study results. Now nanotech innovator AquaNova is offering a new form that extends the applications and does away with some of the hurdles they face.**

AquaNova's carrier system for active substances, known as NovaSol, works rather like microencapsulation but on a nano scale. The active substance is contained within product micelles which are just 30nm in diameter – that is, one millionth of a millimeter.

Corporate development manager Frank Behnam explained to NutraIngredients.com that the system means that the substances are more bioavailable, since the human body must convert nutrients into product micelles before it can use them.

When the nutrients are delivered in normal capsule form, he said that as much as 80 to 90 percent of the benefit may be lost through the conversion process.

"We provide active substances already micellized, so the body can use it better," said Behnam.

A controlled, blind and randomized study involving 60 participants was conducted last year to investigate the bioavailability of the CoQ10 product, called NovaSol Q, compared with market leading products and straight CoQ10. The results, due to be published in coming weeks, indicated that AquaNova's product is absorbed up to four times faster and that more of it is absorbed.

While this superior bioavailability will draw some customers to AquaNova's innovation, others will be attracted by the application benefits. The system lends the active ingredients the both fat and water solubility, which means that they can be added to clear liquids without affecting the clarity.

"When you put a soluble substance into beverages it will normally be an emulsion, so you wont be able to make it clear," said Behnam.

This opens the way for functional water and other beverages containing CoQ10, which have the same appearance as normal beverages. Thus the company expects functional beverages and foods to represent a big market for NovaSol Q, as well as dietary supplements (especially soft gels).

Indeed the NovaSol technology has already been used to create a vitamin E ingredient that does not cloud liquids, called SoluE, in partnership with BASF, and a vitamin C called SoluC.

NovaSol Q also has applications for cosmetics products; for example, it could be used in the formulation of a clear anti-ageing gel.

Moreover, when used in functional foods, the fat and water solubility ensure that an even spread of NovaSol Q is attained, and the tiny size of the particles means that a very small amount can be used in a large amount of end product.

While NovaSol Q may come in at the higher end of the CoQ10 cost scale, Behnam said that it offers a better cost: effectiveness ratio. It is available as a bulk solubilisate in three grades: 3 percent (for beverages), 5 percent (water-free for soft gels) and 22 percent (water free basic grade).

Although the company never sells direct to consumers, it is offering NovaSol Q as bulk soft gels, with either 15mg or 30mg of CoQ10 per capsule.

It is not, however, the only company to offer soluble CoQ10:

A year ago Soft Gel Technologies announced that it had developed a completely solubilized form of CoQ10, called CoQsol-CF; and in November Blue California became the US distributor of CoQ10-WS, a line of water-soluble CoQ10 ingredients.

Both of these ingredients also claimed superior bioavailability.

Israeli start-up NutraLease also said last summer that it had found a way to use nanoparticles to boost the bioavailability of CoQ10 and other functional ingredients by improving their solubility.

AquaNova has patent protection for its CoQ10 formula that supports various applications in nutrition, supplements, cosmetics and pharma.

Besides working with BASF, AquaNova also has a partnership with Degussa for a soluble and more bioavailable form of the antioxidant alpha lipoic acid.

Behnam said that the same technology can also be applied to other popular supplement and functional food ingredients, such as isoflavones, omega-3 fatty acids, lutein and lycopene.

Demand for CoQ10 supplements and foods has been particularly hot in the United States and is thought to have been triggered in part by scientific research indicating that it could aid cardiovascular health and help slow the progression of Parkinson's disease. In Europe it has proved more popular in skin care formulations, thanks to its anti-aging antioxidant properties.