Synutra INGREDIENTS

News Release

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Synutra Ingredients Announces Identification of New Chondroitin Adulterant by Research Team, Advises on Effective Testing Methods

Rockville, MD (June 10, 2014) -- *Synutra International (Nasdaq: SYUT)* President Weiguo Zhang announced today that a recently discovered adulterant of chondroitin sulfate, which Synutra called Zero One (Z1), has been identified as sodium hexametaphosphate by a team of industry experts the company convened. He further advises the industry of the effective ingredient testing methods to separate this adulterant and ensure chondroitin purity and quality.

Aishan Li, director of R&D and Quality Control of Meitek Technology, a Synutra subsidiary, first reported discovery of the new adulterant Z1 in 2013, confirming the suitability of electrophoresis as an effective screening tool for detecting impurities and adulterants in chondroitin. What remained was to discover the identity of Z1, of particular importance in case it was a substance that presented a health risk.

A research group was established, pooling input and resources from the industry's top scientists with chondroitin expertise in the US. The team included Synutra's Weiguo Zhang, James Neal-Kababick, Director of Flora Research Laboratories, Jana Hildreth, Director of Technology and Scientific Affairs of Synutra Pure, Gabriel Giancaspro, Vice President of the United States Pharmacopeia (USP), Kristie Adams, a nuclear magnetic resonance spectroscopy scientist at USP and the late Dr. Mark Roman, Director of Tampa Bay Analytical Research Laboratories, to whom the resulting research paper is dedicated.

Over several months this team gathered preponderant evidence that Z1 is a form of polyphosphate salt, namely sodium hexametaphosphate. "It is an industrial chemical that is inexpensive and easily available," said Neal-Kababick, who performed polarized light microscopy, elemental and infrared analyses of the suspect substance. "It is commonly used in detergent or as a water treatment agent, and is sold under the commercial name Calgon®."

"Sodium hexametaphosphate may be ingested by humans in small amounts, but if the level of adulteration goes to about 10% of the supplement serving size, it depletes calcium from the body," commented Hildreth. "Its use in joint health supplements may pose serious safety and health risks to consumers."

The most commonly used chondroitin assay method, cetylpyridinium chloride (CPC) titration, can be fooled by various known adulterants. Synutra advocates using CPC after cellulose acetate membrane electrophoresis (CAME), a complementary methodology to CPC that has been in the USP monograph for years and was designed to screen out ingredient material

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impurities and keep the CPC assay true. Currently in the industry most companies use only CPC but few use CAME in their routine screening of incoming raw materials. "Of the known chondroitin adulterants identified to date, including sodium alginate, propylene glycol alginate sulfate sodium, and sodium hexametaphosphate, all can be separated out from chondroitin material by their difference in electrophoretic mobility," noted Zhang, who performed CAME in Synutra's Rockville, Maryland research laboratory.

"We advocate widespread adoption of CAME as a qualitative, raw material screening tool before running quantitative methods such as CPC for assay, or other specific methods such as enzymatic HPLC. CAME is an inexpensive, simple, and effective procedure that can serve us well in effectively deterring the practice of adulterating chondroitin ingredients with known adulterants," said Zhang.

Because of the global nature of the supply chain, food and dietary supplement ingredients are susceptible to adulteration, particularly when price is the main purchasing criteria, and therefore must be sourced very carefully. In addition to the concern about potentially negative health impact of adulterants, manufacturers are vulnerable to FDA action when their label claims are inaccurate due to missing or misidentified ingredients, and consumers do not get the health benefits they expect when ingredients are not what they are supposed to be. "Because of the size and scope of the supply chain, it is imperative that all responsible companies be proactive in ensuring the purity and identity of ingredients," Zhang said.

Because chondroitin products are in the top five best selling dietary supplements, with annual sales of about $1 billion, and most chondroitin ingredient is sourced from overseas, chondroitin is often targeted for adulteration. Synutra, currently the largest supplier of chondroitin as a dietary ingredient in the world, started tracking and monitoring chondroitin adulteration in the supply chain three years ago.

The research team intends to publish its findings in a peer-reviewed journal, with details of the collaborative studies currently being finalized. These efforts have opened up other potential pathways to develop new methodologies to detect chondroitin adulteration.

About Synutra Ingredients

Synutra Ingredients manufactures branded chondroitin Chondro Gold® and Chondro Cal® which are guaranteed adulterant-free, with ultra low heavy metal limits, and offer a choice of source material. The company is based in Rockville, Maryland and shares its Research Boulevard corporate office with its parent company Synutra International, Inc (Nasdaq: SYUT) and its consumer division Synutra Pure®. *Synutra Ingredients* oversees sales and marketing activities of Synutra Group's dietary and food ingredients to industrial customers in North America and around the world. The division also manages customer relationships, handles shipping and logistics, and provides technological and informational support to Synutra Group affiliates. Synutra subsidiary Meitek Technology is an USP-verified manufacturer of dietary ingredients and supplements. Synutra is an organizational affiliate of AOAC International.
www.synutraingredients.com

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