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Antihypertensive Effect of Fermented Milk Products Under the Microscope

Potential health benefits of functional foods based on new lactic acid bacteria offer opportunities for food developers, report investigators in the *Journal of Dairy Science*®

Philadelphia, PA, May 23, 2016 – Over the past decade, interest has been rising in fermented dairy foods that promote health and could potentially prevent diseases such as hypertension (high blood pressure). Functional dairy products that lower blood pressure and heart rate may offer consumers an effective alternative to antihypertensive drugs if their effectiveness can be demonstrated. Investigators reporting in the *Journal of Dairy Science*® review the scientific basis of reported claims and identify opportunities for developing products based on new lactic acid bacteria.

Hypertension affects more than one billion people throughout the world, according to the World Health Organization. It is an important risk factor for developing other cardiovascular diseases, stroke, renal failure, cerebrovascular accidents, and many other medical complications. Although hypertension can be treated with drugs, these often involve significant side effects. Scientists are therefore seeking out food substances that can help reduce or prevent hypertension.

“Fermented milk has been promoted as a nonpharmacological treatment for hypertension, mainly because of the lack of undesirable side effects, but as yet, there is insufficient evidence to support this according to the European Food Safety Authority (EFSA),” explained lead investigator Belinda Vallejo-Córdoba, PhD, of the Center for Food Research and Development, Sonora, Mexico. “The most studied bioactive peptides derived from dairy proteins are antihypertensive peptides; however, existing studies need to be evaluated before a health claim may be associated with products. With this in mind we have carefully reviewed in vitro and in vivo and clinical studies of fermented milk containing antihypertensive peptides.”

The team of investigators established that the most common strategy to select fermented milks with antihypertensive potential was to identify angiotensin-converting-enzyme (ACE) inhibitory peptides by in vitro studies. However, they observed that some strains inhibiting ACE activity in vitro did not reduce blood pressure in rats. They evaluated 13 studies with spontaneously hypertensive rats and seven randomized controlled clinical trials in which an antihypertensive effect was demonstrated. Most were based on *Lactobacillus helveticus*.

Scientifically proven health claims and acquisition of exclusivity rights of using novel food ingredients in functional food products has been observed as a critical factor in ultimate success of these food products in the market. The investigators note that several fermented milk products already on the market attribute their antihypertensive effect to the bioactive peptides present in the fermented milk and draw attention to the fact that some of these commercial products possess intellectual property rights. However, they point out that these products may also contain minerals such as potassium and calcium, which may have a positive effect on blood pressure.

“Although much research related to antihypertensive peptides has already been done, there is a great need for exploration of new lactic acid bacteria that possess the ability to generate this bioactivity as well as good technological properties for the production of fermented dairy products. As commercial fermented milks with antihypertensive effects are scarce and most of the current products are based on *Lactobacillus helveticus*, there is a great opportunity here,” commented Dr. Vallejo-Córdoba.

The authors recommend future studies to include in vitro lactic acid bacteria screening for ACE-inhibitory effects, in vivo studies with spontaneously hypertensive rats, and clinical trials to test the efficacy of the fermented milk product. “It is also important to develop the regulatory legislation that allows the introduction of health claims for functional dairy foods, especially in countries where this subject is underdeveloped,” Dr. Vallejo-Córdoba concluded.

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NOTES FOR EDITORS

“Invited review: Fermented milk as antihypertensive functional food,” by L. M. Beltrán-Barrientos, A. Hernández-Mendoza, M. J. Torres-Llanez, A. F. González-Córdova, and B. Vallejo-Córdoba (DOI: http://dx.doi.org/10.3168/jds.2015-10054), *Journal of Dairy Science*, Volume 99, Issue 6 (June 2016), published by Elsevier. The article is openly available at http://www.journalofdairyscience.org/article/S0022-0302(16)00169-7/pdf

Full text of the article is available to credentialed journalists upon request; contact Eileen Leahy at +1 732-238-3628 or jdsbmedia@elsevier.com to obtain copies or go to http://www.journalofdairyscience.org/article/S0022-0302(16)00169-7/pdf. To schedule an interview with the authors, please contact Belinda Vallejo-Cordoba at vallejo@ciad.mx.

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