

Editorial¹

Milk and Its Bioactive Peptides: Phenomenal Nutraceutical Food of the Century



EXPRESSION OF THOUGHT:
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We live in a century where everything is observed in nano size scale and there is a new vision and a new way of looking at everything that already exists. Scientists and researchers are very precise in observing everything and finding new functionalities from the existing materials. Different side effects have been reported to result from the uses of synthetic drugs and food additives, and thus, finding natural drugs and food additives from natural sources is at the top of research list in most developed countries. In fact, we have reached the time where the terms drug and additives have been replaced with nutraceuticals and where prevention is more important than treatment.

Unfortunately more than 50% of the people are suffering from diseases such as cardiovascular disease, bone defects, rheumatoid arthritis, atherosclerosis, cancer, AIDS, Alzheimer, and diabetes. The first step in reducing the risk of suffering from different diseases is to have a double check at what we eat every day, i.e. to consider everyday food not only from its nutritional aspect but also from health and medicinal point of view and to eat food with high antioxidant agent. Among food that is consumed every day, milk has a high potential in this regard. Milk is a rich source of dietary protein, which is made of caseins and whey proteins. Its great nutritional value has made milk an important must-use everyday food for centuries. During the last two decades, an increasing number of data have shown that milk can play additional functions than merely energetic and nutritional ones. Milk proteins exert a wide range of biological, nutritional and functional activities such as chaperon activity and bioactivity of their peptides. It has been reported that multiple biologically active (bioactive) proteins and peptides can originate from milk. Bioactive peptides are a great source of natural drugs, which can both prevent and cure different diseases. These peptides can be produced *in vivo* during gastrointestinal digestion or *in vitro* through food processing using specific enzymes. Milk protein derived peptides have different functionalities including antioxidant activity, antimicrobial activity and blood pressure–lowering effect. These peptides have been used in the formulation of other food products for the production of functional food. Most food products are produced using bovine’s milk proteins

but bovine milk allergy by far is the most prevalent food allergy, especially in children, and β -lactoglobulin (β -LG) is considered the dominant bovine milk allergen. Camel milk lacks β -LG and is enriched with α -Lactalbumin such as human milk. The milk of camel, a high-tech animal whose antibodies have successfully been used for the treatment of cancer, contains proteins that can cure hepatitis and diabetes. Thus, the health benefits of camel milk are attributed to the presence of high concentrations of insulin-like protein and other factors that have positive effects on immunity. Its composition is closer to human milk compared to bovine's milk. The functionality of the bioactive peptides produced from camel milk has been studied both in vitro and in vivo. The results are phenomenal. The bioactive peptides produced from camel milk open a new era for the production of healthy additives, nutraceutical components and new products, in which health and prevention is considered the most important factor in the food industry.

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Professor Dr. Ali A. Moosavi-Movahedi is also the author of 13 books and 360 full research papers published in international research journals, mainly in the area of structural elucidation of protein, enzyme and DNA. To date, the avid researcher has supervised 33 PhD and 42 MSc students and also guided postdoctoral researchers in the cited area. Apart from being a member of various societies such as Biophysical Society (USA), Protein Society (USA), Iranian Chemical Society, Iranian Biochemical Society, Professor Ali A. Moosavi-Movahedi is also currently the President of Iran Society of Biophysical Chemistry.

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