

## Tracing the bioactive casein phosphopeptides as one of functional foods ingredients in semi-hard cheeses: Trends of functional foods in Egyptian market

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The nutrition-health relationship is now well established including risks and benefits associated to the consumption of some foods. Consumers more and more believe that foods contribute directly to their health and seek for natural products to fit their needs. Casein-phosphopeptides (CPP) are phosphorylated casein-derived peptides which possess the ability to affect some biological functions of the body and have the potential applications or to play essential roles in terms of human health e.g. mineral supplementation and bioavailability, bone formation, prevention of osteoporosis and recalcification of bones, cure of anemia, anticariogenic, antimicrobial and immunity enhancement. Casein-phosphopeptides are considered the most favorite bioactive peptides for application as nutraceutical and functional food ingredients for human consumption to provide specific health benefits. This study investigated the presence and characterization of phosphopeptides in semi-hard cheeses and studied the trends of functional food in Egyptian market. The RP-HPLC peptide profiles provide a useful visual representation of the dynamics of peptide production and degradation as proteolysis progressed in cheese ripening. The RP-HPLC patterns of the isolated peptides were complex and dependent on the age of the cheese samples. Regardless the variation in the ages of cheeses tested, the semi-hard cheeses could be ordered descending according to their contents from phosphopeptides as follows: Herrgård cheese>Gouda cheese>Kadett>Västan>Edam>Port Salut. Regarding the phosphopeptides isolated from the semi-hard cheeses, the  $\beta$ -CN fraction was the source of the largest number of phosphopeptides compared to other fractions. In conclusion, it could be recommended that semi-hard cheese, are functional foods at specific age; since, during ripening, several peptides known to be biologically active or containing bioactive sequences as phosphopeptides were formed from the hydrolysis of casein fractions.

### Biography

Khaled El Saadany has done his PhD practical work in KVL University, Denmark and Alexandria University, Egypt. In 2014, he got a project from STDF to establish Functional Food and Nutraceutical Lab in Alexandria University. He is the Executive Manager of Grants, Innovation and Technology Transfer Center. He is Visiting Professor through Erasmus Mundus at Food and Health Department, Cardiff Metropolitan University, Cardiff, UK. He has 12 years working experience with EU, International Bank & USAID projects. He participated in several international projects; and led and managed multi-international projects.

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