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Database of Biologically Active Peptides and Proteins

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Peptides derived from food proteins affect biological, functional, immunological and sensory properties of food products. Proteins apart from their function as the nutrients act as the precursors of nutraceuticals with variety of functions. BIOPEP database of protein and peptide sequences has been designed mainly for scientists working in the area of food and nutrition (http://www.uwm.edu.pl/biochemia). BIOPEP database consists of sequence databases: proteins, bioactive peptides, allergenic peptides with their epitopes and sensory peptides. The information concerning peptide or protein covers its sequence; data about activity or taste; references or in the case of allergenic protein database reference, sequence of experimental and theoretically predicted linear epitopes. Sequence analysis options include the construction of profiles of the potential biological activity, epitopes or sensory activity, calculation of the quantitative parameters A and B useful for evaluation and classification of proteins as precursors of bioactive or sensory peptides as well as immunogenic fragments. The options available include also the simulation and design of proteolysis as well as data mining. BIOPEP contains also the collection of links to other databases and programs. Proposed workflows for use of database of bioactive peptide sequences cover among others: use sequences of peptides as queries for database screening or identification of peptides from BIOPEP among products of protein hydrolysis. Selected examples of applications of the database, described by other authors will be presented. To date, apart from the data concerning different biological properties of peptides, BIOPEP may serve as a tool supporting the experimental and theoretical studies on food-derived biopeptides.

Biography:

Dr. M. Darewicz received PhD in agricultural sciences in 1992. In 1997 she was visiting scientist in Danish Technological Institut, in 1998 at Wageningen University (Holland). From 2008 she has been full professor. She was visiting professor at Universities in Spain, Greece, France, Germany. Research Interests:physicochemical, functional, technological and structural properties of proteins, modifications combined with structure and function relationships; effect of technology on the molecular and functional properties; identification of proteins and peptides by use of HPLC, MS, and UV spectroscopy; in silico, ex vivo and in vitro study of proteins and peptides in aspect of diet-related diseases.