

## **Bioinformatics approaches for identifying new therapeutic bioactive peptides in food**

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### **ABSTRACT:**

The traditional methods for mining foods for bioactive peptides are tedious and long. Similar to the drug industry, the length of time to identify and deliver a commercial health ingredient that reduces disease symptoms can take anything between 5 to 10 years. Reducing this time and effort is crucial in order to create new commercially viable products with clear and important health benefits. In the past few years, bioinformatics, the science that brings together fast computational biology, and efficient genome mining, is appearing as the long awaited solution to this problem. By quickly mining food genomes for characteristics of certain food therapeutic ingredients, researchers can potentially find new ones in a matter of a few weeks. Yet, surprisingly, very little success has been achieved so far using bioinformatics in mining for food bioactives.

The absence of food specific bioinformatic mining tools, the slow integration of both experimental mining and bioinformatics, and the important difference between different experimental platforms are some of the reasons for the slow progress of bioinformatics in the field of functional food and more specifically in bioactive peptide discovery.

In this paper I discuss some methods that could be easily translated, using a rational peptide bioinformatics design, to food bioactive peptide mining. I highlight the need for an integrated food peptide database. I also discuss how to better integrate experimental work with bioinformatics in order to improve the mining of food for bioactive peptides, therefore achieving a higher success rates.

**Keywords:** bioactive peptides, bioinformatics, mining food, therapeutic properties, food proteins, functional food.