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Mass spectrometry based proteomics as foodomics tool in research and assurance of food quality and safety

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1 **Mass spectrometry based proteomics as foodomics tool in research and**
2 **assurance of food quality and safety**

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17
18 **ABSTRACT**

19 *Background:* As a comprehensive discipline that studies food and nutrition, foodomics requires
20 reliable qualitative and quantitative information about the food proteome component in order to
21 extract new, integrative information from the complex multivariable space of omics. This
22 information is necessary to achieve a higher level of understanding of processes in food science
23 and technology, consequently new functions of food and improved markers of food quality and
24 safety and transform the concept of food safety.

25 *Scope and Approach:* We are presenting mass spectrometry (MS) based proteomic approaches
26 that are being utilized in different proteomic studies, not necessarily only in the field of
27 foodomics. Current analytical capabilities of MS-based proteomics together with sample
28 preparation procedures and quantification strategies, and recent technical developments were
29 presented.

30 *Key Findings and Conclusions:* MS-based proteomics enables the analysis of different aspects of
31 proteins and provides a variety of approaches for reliable quantification of individual proteins
32 and/or food proteome. This is a complex field and its successful implementation requires a

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