

# World Congress on ADVANCED NUTRACEUTICALS AND FUNCTIONAL FOODS

July 15-16, 2019 | London, UK



## Wojciech Piekoszewski

Jagiellonian University, Poland

### Influence of four different coagulants on the physicochemical properties, textural characteristics and volatile flavor profile of tofu

The coagulation mechanism and quality characteristics of tofu depend on the choice of coagulant. The effects of using magnesium chloride (MgCl<sub>2</sub>), calcium sulfate (CaSO<sub>4</sub>), glucono δ-lactone (GDL) and Fermented Soybean Whey (FSW) as coagulants for tofu were investigated using Solid-Phase Microextraction (SPME) and two-dimensional gas chromatography coupled with mass spectrometry (GC×GC-MS), Scanning Electron Microscopy (SEM), and analysis of textural characteristics and physicochemical properties. The results revealed significant differences ( $P < 0.05$ ) in the moisture contents, yields, protein contents and amino acid contents of tofu samples prepared using the four coagulants. GDL tofu exhibited the highest yield (202 g/100g) and moisture content (76.3%). FSW tofu had the highest protein content (18.5%) and amino acid content (15.85%). In terms of the textural properties, hardness, chewiness and gumminess were significantly affected by the choice of coagulant. GC×GC-MS analysis revealed the presence of 49, 44, 55 and 63 flavour substances in the tofu samples prepared using MgCl<sub>2</sub>, CaSO<sub>4</sub>, GDL and FSW, respectively. In sensory evaluation tests, GDL tofu was reported to possess a smooth surface and white colour. The microstructure of FSW tofu was dense and uniform. The results of this study demonstrate that the quality of tofu is affected by the choice of coagulant. An evaluation method was established based on relevant characteristics to determine the differences in the properties of tofu samples produced using the various coagulants.

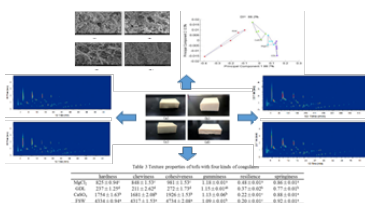


Figure 1: The physicochemical properties, texture properties and volatile flavor profile of tofu with four kinds of coagulant

### Biography

Wojciech Piekoszewski, professor of Medical Sciences with second degree of specialization in Toxicology. He is the head of the Toxicological and Pharmaceutical Analysis Group and the Head of the Laboratory of High-Resolution Mass Spectrometry, of the Faculty of Chemistry, Jagiellonian University, Krakow, Poland. He is the chief researcher of the laboratory of food biotechnology and pharmaconutrition, FEPU, Vladivostok, Russia. Scientific interests: application of metabolomics, proteomics and lipidomics as tools for diagnosis (biomarkers) of mental and neurodegenerative disorders, food safety and security, and analysis of drugs and medicaments in biological materials.

wojciech.piekoszewski@uj.edu.pl