

# Bioactive peptides content and their activity of tofu-whey as waste in tofu processing

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## Introduction



Tofu-whey is a pale-yellowish liquid with specific aroma/taste which remains as byproduct after tofu squeezing and represents an environmental problem for direct disposal. Tofu-whey is highly perishable due to its high water content and high content of nutritious substances for bacterial growth. Tofu-whey contains proteins, oligosaccharides, soluble salts and bioactive peptides. Understanding the activity of bioactive peptides of fresh tofu whey could be useful for application of tofu whey as a functional food additive.

## Materials



Tofu whey was obtained during tofu production from six soybean genotypes by hydrothermal processing in combination with chymosin-pepsin rennet.

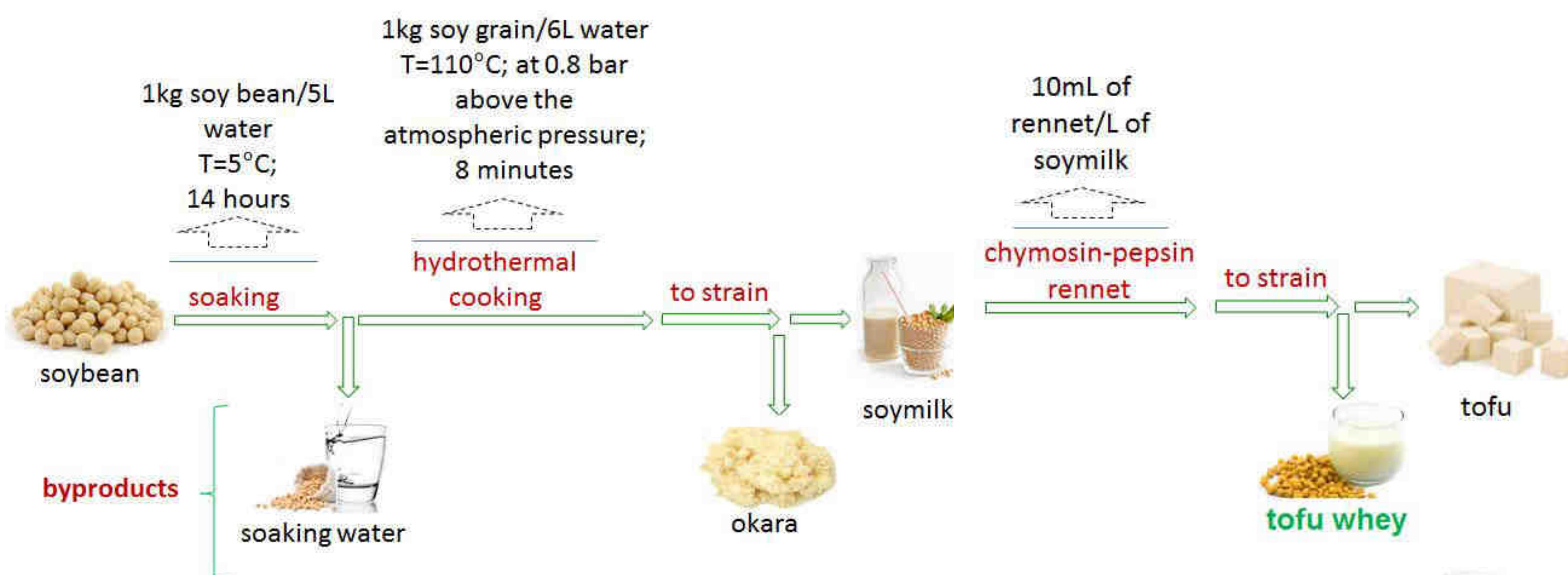


Figure 1. Schematic representation of tofu production and tofu-whey extraction.

## Results



The quality of soybean proteins is limited by soybean's high content of antinutritional factors including trypsin inhibitors and lectins. On the other hand, a balanced relationship between the content and activity of these biologically active components has a beneficial effect on human health (preventive and therapeutic effects in many diseases, such as diabetes, cardiovascular, bone and kidney diseases, and cancer). Moreover, because trypsin inhibitors are cysteine-rich proteins, heat treatment should aim to balance the content and activity of these physiologically active compounds (to preserve their content and reduce their activity) and to make them nutritionally valuable.

Our results showed that applied heat treatment/high pressure/short time to soybeans was sufficient to get such a result in fresh tofu-whey. Balanced content and activity of trypsin inhibitors and low lectins content indicate potentially good nutritional value of tofu-whey samples.

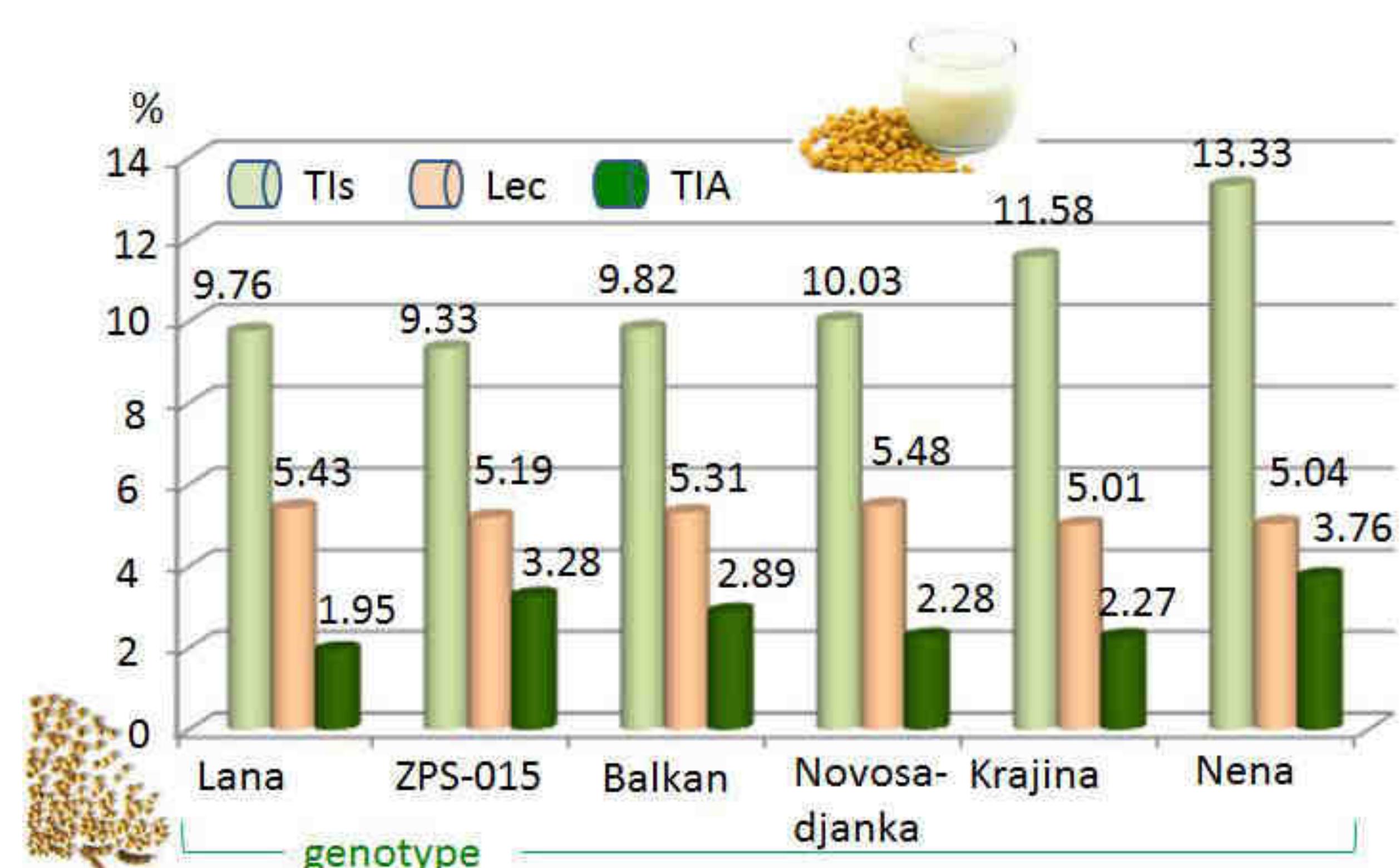


Figure 2. Content of trypsin inhibitors (Tis) and lectins (Lec) and activity of trypsin inhibitors (TIA) in tofu whey

## Conclusions



Tofu whey can be potential useful for application as a cheap, nutritional and functional food additive which certainly can improve food-processing sustainability through recycling of waste.