



Kokumi sensation from poultry protein: adding the 'Oomph!' taste in food

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Introduction

- High salt intake in average Canadian: 3.1g/day (>55% than the WHO recommended level - 2g/day).
- Glycopeptides from Maillard reaction possess flavour enhancing properties including kokumi sensation.
- Kokumi is referred to as savory, mouthfulness, continuity. The compounds do not have their own flavour but enhance the flavours in food which they are combined with.
- Kokumi taste enhancer can be used as a partial salt replacer without compromising the taste in food.
- Common kokumi compounds include glycopeptides from soy, protamine, gamma-glutamyl peptides & glutathione.

Objectives

- To develop a method in producing glycopeptides enzymatically by using hydrolysed poultry protein isolate and sugar at moderate temperature.
- To evaluate the salt enhancing taste in the glycopeptides.

Materials & Methods

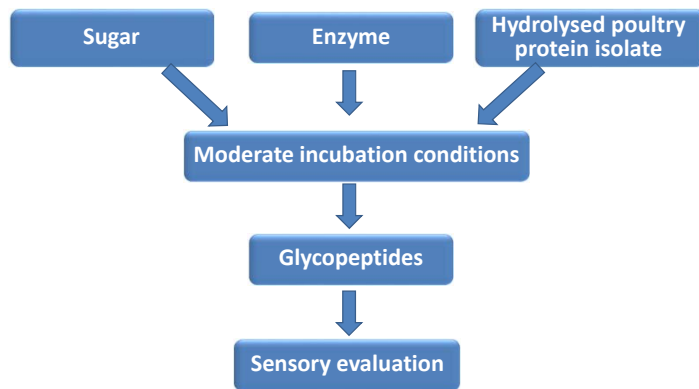


Figure 1. Experimental design for the production and evaluation of glycopeptides from hydrolysed poultry protein isolate.

Approach

- Enzymatic hydrolyzed peptides are well-documented as potential antioxidants.
- Low incubation temperature is used to prevent formation of browning substances and other harmful Maillard reaction end products.
- Poultry protein isolates are extracted from mechanically deboned poultry meat, thus adding-value to the under-utilized raw material and enabling the production of the glycopeptides more cost effective.

Result

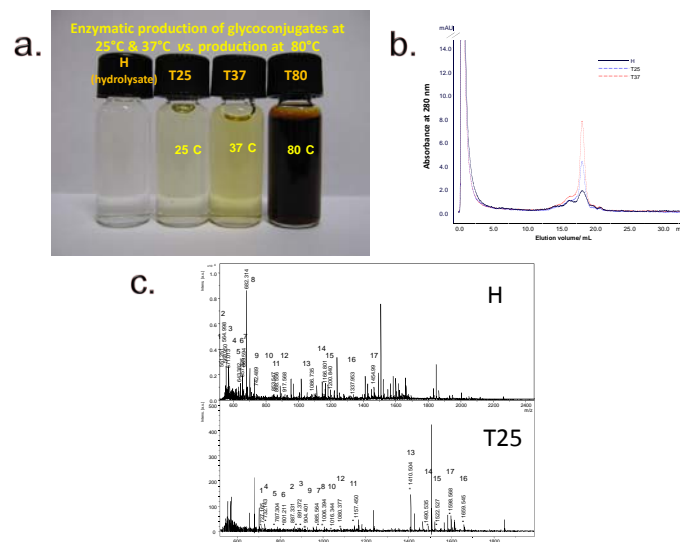


Figure 2. A model study was carried out by conjugating protein hydrolysate enzymatically with sugar.

a. Reduced browning observed in samples treated with moderate incubation temperature (25 °C & 37 °C) indicates less formation of Maillard reaction end products.

b. Peptide distribution of glycopeptides monitored at wavelength of 280 nm. Presence of glycopeptides in the sample resulted in relatively higher concentration of aromatic amino acids.

c. Molecular mass determination of glycopeptides in hydrolysed protein by using MALDI-TOF MS: glycopeptides produced enzymatically (*) and Maillard reaction peptides (•) were detected in T25.

Work in Progress

- Scale up of glycopeptide production in a pilot plant.
- Sensory evaluation of glycopeptides: to evaluate the salt-enhancing property.

What Does This Mean?

- Adding value to under-utilized poultry protein.
- Less browning compound, less impact on health.
- Alternative source of kokumi flavour enhancer and partial salt replacer.
- Kokumi flavour enhancer with a lesser cost.

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