Effects of proteins and peptides obtained from okara, a by-product of soymilk production, on human colon cancer CACO-2 cells

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AIM

To investigate the effects on **inflammation** of okara proteins (OP) and derived peptides in Caco2 cell model.

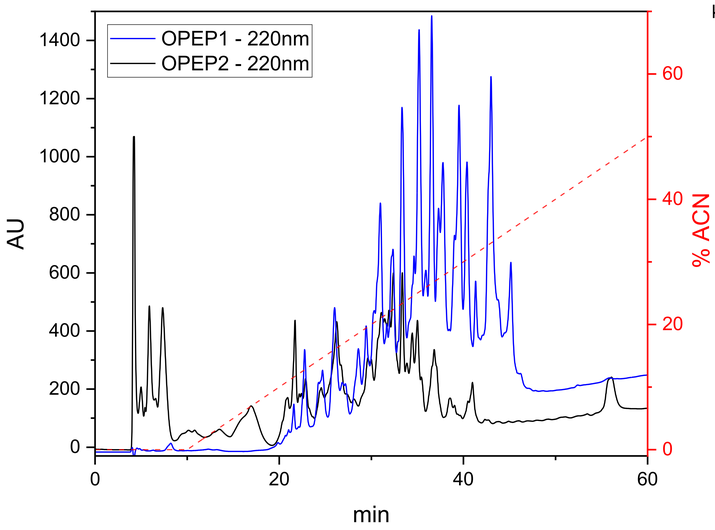
OKARA

Okara is a **by-product** generated during soymilk or tofu production processes. Less than 5% is used as an ingredient for food however, it contains high amounts of nutrients, including proteins (30%) and polyphenols. Food proteins and **peptides** may exert bioactivities, relevant for maintaining well-being and to prevent diseases.

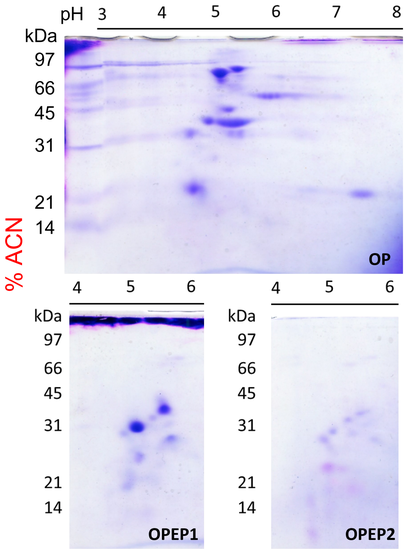
METHODS

- Protein isolation (OP)
- Pancreatin digestion 24h (OPEP1)
- Pepsin 1h + Pancreatin 1h (OPEP2)
- RP- HPLC and 2DE
- CACO2 cell inflammation (IL-1β stimulation)
- RT-PCR (IL8 expression)

RP-HPLC

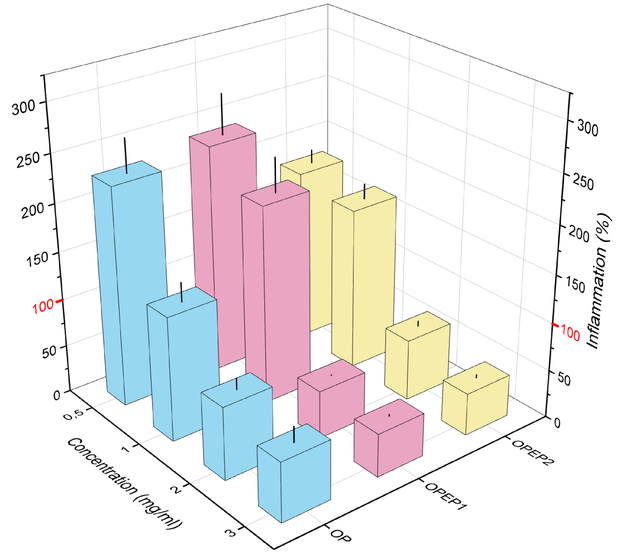


2DE



- Digestion of okara isolated proteins led to the production of different peptide species with potentially different biological activities.
- OP revealed variable digestion pattern in function of enzyme(s) used.
- Simulation of gastric digestion led to a higher production of low MW peptides leaving only few digestion resistant polypeptides.

CACO2 INFLAMMATION



- Caco2 + IL-1β was set as 100% IL8 expression.
- OP, OPEP1 and 2 alone do not elicit inflammation
- Combined pro-inflammatory effect at lower concentrations (IL-1β + OP, OPEP1, OPEP2)

- **Anti-inflammatory activity in all samples tested at higher concentrations**
- **Dose dependence in OPEP2**

Isolation and characterization of anti inflammatory peptide(s)