

Protein modifications during the production of rapeseed meal and the effects on the rate of protein hydrolysis

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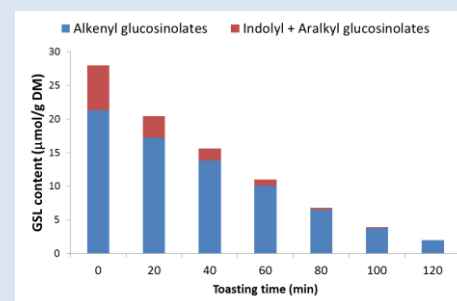
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Aim. To analyse effects of toasting during production of rapeseed meal on glucosinolates content, protein solubility and hydrolysis rate

WHY?

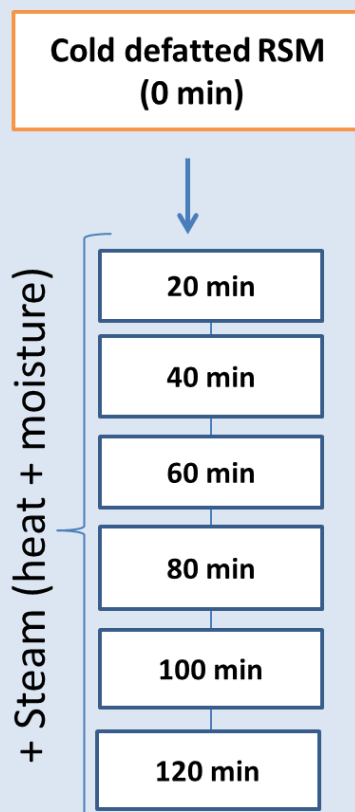
Protein digestibility is reduced during toasting of rapeseed meal. Mechanisms of the reduction in digestibility during toasting are not clear.

Results

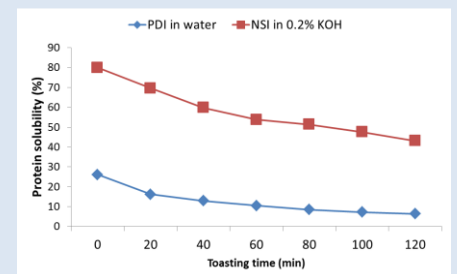
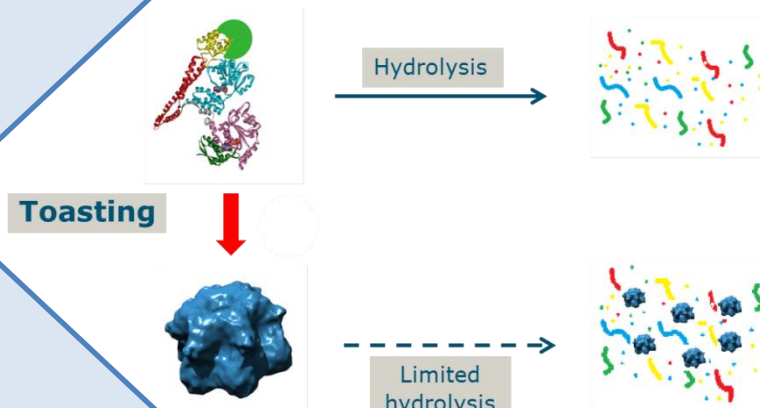


Reduced glucosinolates content
 Linear <0.001
 Quadratic 0.001

Materials and methods

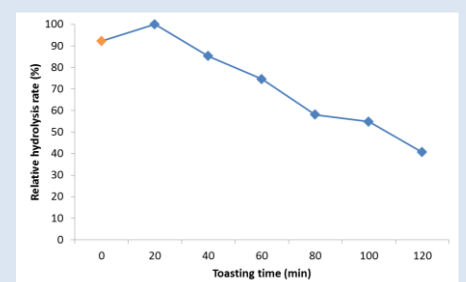


Hypothesis



Reduced protein solubility
 Linear PDI = <0.001
 NSI = <0.001
 Quadratic PDI = <0.001
 NSI = 0.09

Reduced hydrolysis rate
 Linear <0.001
 Quadratic 0.47



What we analysed?

- **Glucosinolates content:** HPLC
- **Protein solubility:** Nitrogen solubility index (NSI) and protein dispersibility index (PDI)
- **Protein hydrolysis:** pH-STAT with trypsin, chymotrypsin and peptidase, pH 8, 37 °C, 2 hours (Pedersen and Eggum 1983)

Conclusion

Protein modifications related to decreased protein solubility impair enzyme accessibility and decrease rate of protein hydrolysis.