

### Nutritional quality of proteins from two beef co-products as determined in the growing pig

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## **INTRODUCTION** and **OBJECTIVE**

- The increasing demand for food and especially for protein, intensifies the search for alternative protein sources.
- The valorization of co-products not yet used as human foods, such as from meat production, is from this point of view promising.
- > The present study aimed to evaluate the nutritional quality of two protein ingredients extracted from the beef fat rendering process.



and myptophan content (basic hydrolysis  $\alpha$  m cc, ndonmetry), warker ( $mc_2$ , rcc

### RESULTS



N: Nitrogen; EAA: Essential Amino Acids; NEAA: Non-essential Amino Acids; AA: Amino Acids; LAA: limiting amino acid; TRP: Tryptophan p < 0.001 (\*\*\*), p < 0.01 (\*\*), p < 0.05 (\*) and p > 0.05 (NS) or p < 0.1 (•).

WRP is made up of less EAA than GGRP.
WRP and GGRP proteins are moderately digestible (TID ~ 80%).
The first limiting AA is tryptophan (TRP) for both protein ingredients.
The DIAAS measurement classifies GGRP as a good quality protein but solely for older children, adolescents and adults population.

The **kinetics of AA** release differs between proteins, with postprandial plasma AA concentration reaching its maximal value earlier for WRP (3 hours) than for GGRP (5 hours). The difference in plasma urea concentration, indicates a greater level of **hepatic AA catabolism** and an **EAA deficits** for WRP than GGRP, in line with the greater imbalance in terms of EAA profile for WRP than GGRP.

# CONCLUSION

- GGRP has a nutritional quality suitable to meet the needs of older children, adolescents and adults, while WRP should be supplemented with other protein sources rich in EAAs to fulfill the AA requirements.
- Postprandial kinetics of plasma AA and urea highlighted the higher efficiency of GGRP for protein muscle synthesis.







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