

The Usability of Finnish Plant Proteins in Fish Feeds as Estimated by Stable Isotope Analysis

Siqingerile

University of Jyväskylä

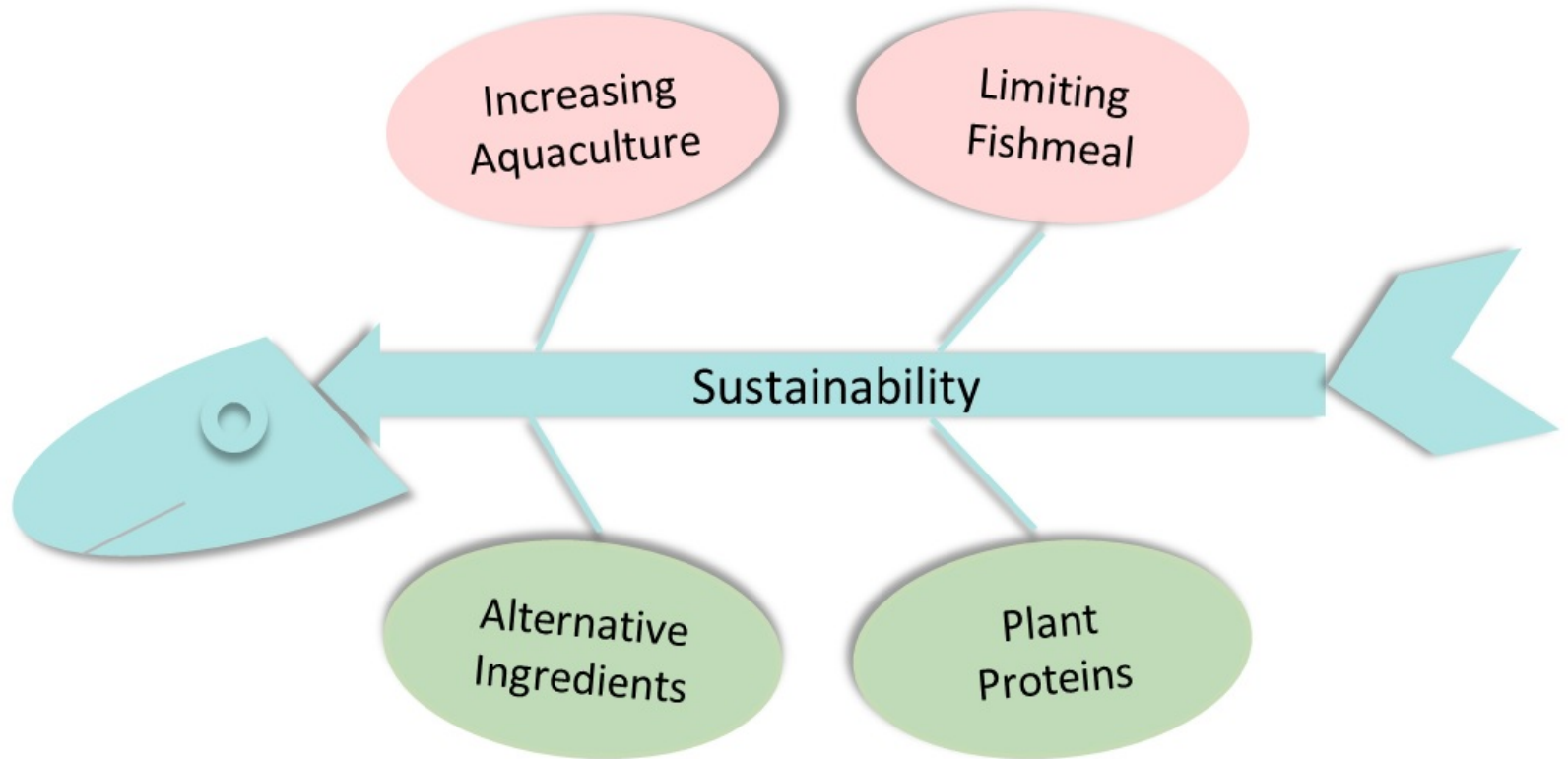
Department of Biological and Environmental Science



Funded by Raisio Oyj:n Tutkimussäätiö



Research background



Plant-based protein

- Anti-nutrient factors
- Limiting amino acids
- Not perfect, but good



Evaluation of assimilation

Coventional approaches

Direct method

Indirect method

Stable Isotope Analysis



Stable Isotope Analysis

- Ecological research
- Fish nutrition study

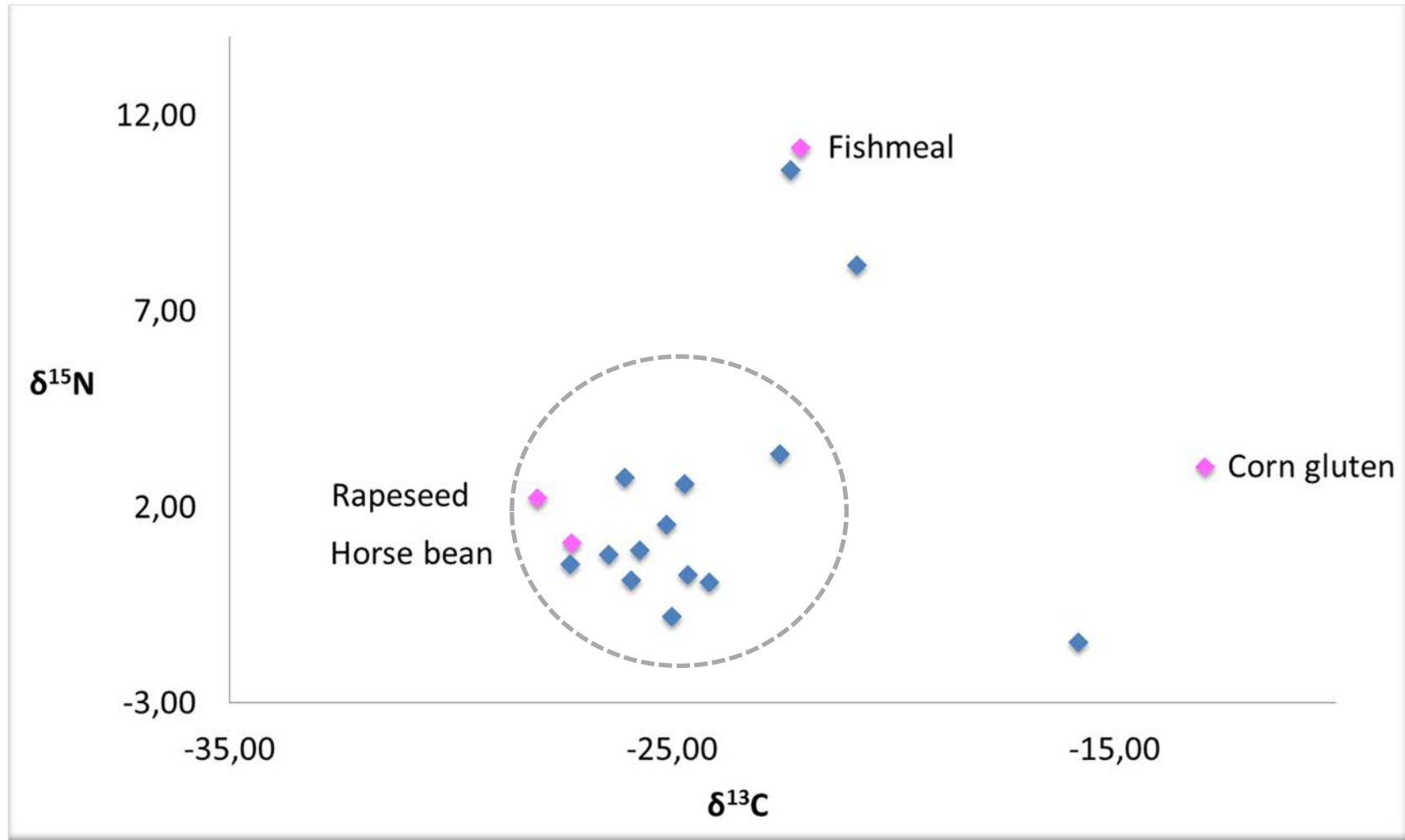


The conditions for SIA

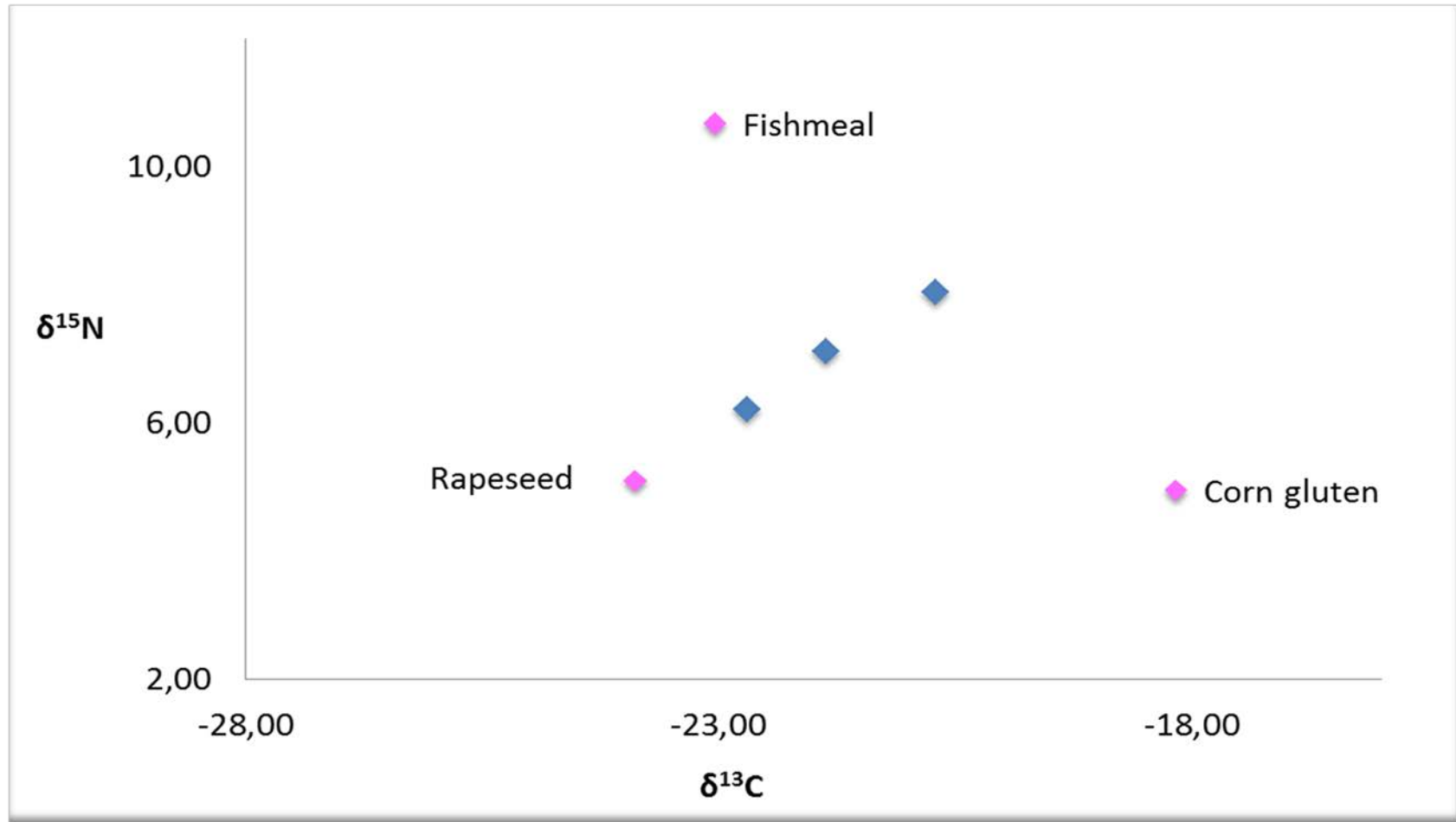
- Significant difference in isotope values
- Standardized dietary nutritional quality
- Standardized growth conditions



Isotope composition of various feed ingredients



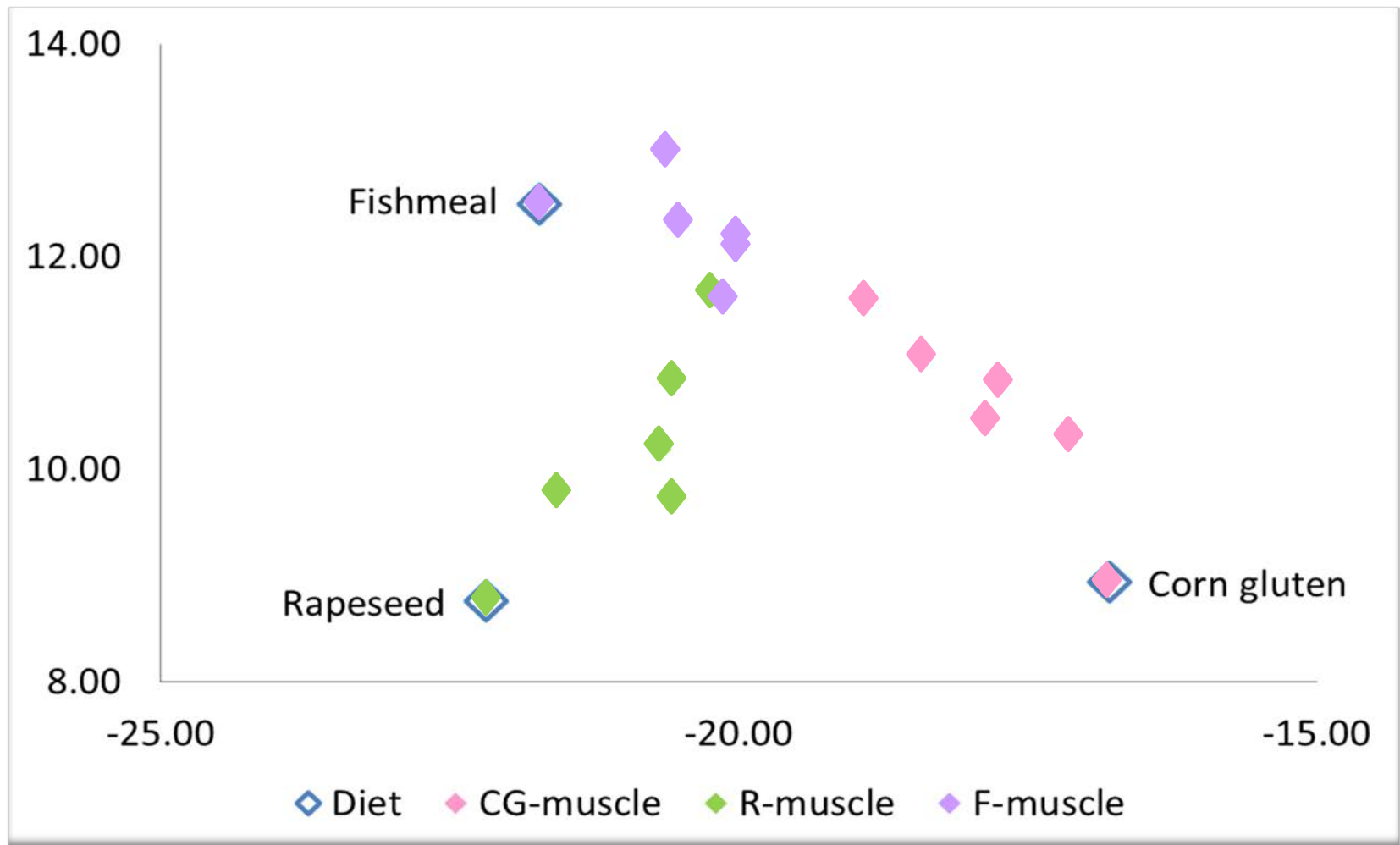
Isotope profiles of the 6 diets



δ value: the ratio of the heavy to light isotope (‰)



SIA of muscle tissue



Complementary approach

- Specific growth rate
- Feed conversion ratio
- Protein & lipid retention efficiency



Conclusion

- Experimental methodology
- Locally produced plant proteins
- Labelling experiment



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Thank you very much!

