

Trypsin Inhibitory Activity and Protein Digestibility in Legume-Based Products Commercially Available in a Southern Brazilian City

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INTRODUCTION & AIM

The consumption of legumes and their dietary applications are already widely known in Brazil. The search for inexpensive, high-quality protein sources, as well as their frequent association with longevity, place legumes at the center of many studies (Huang et al., 2019; Chukwu et al., 2022).

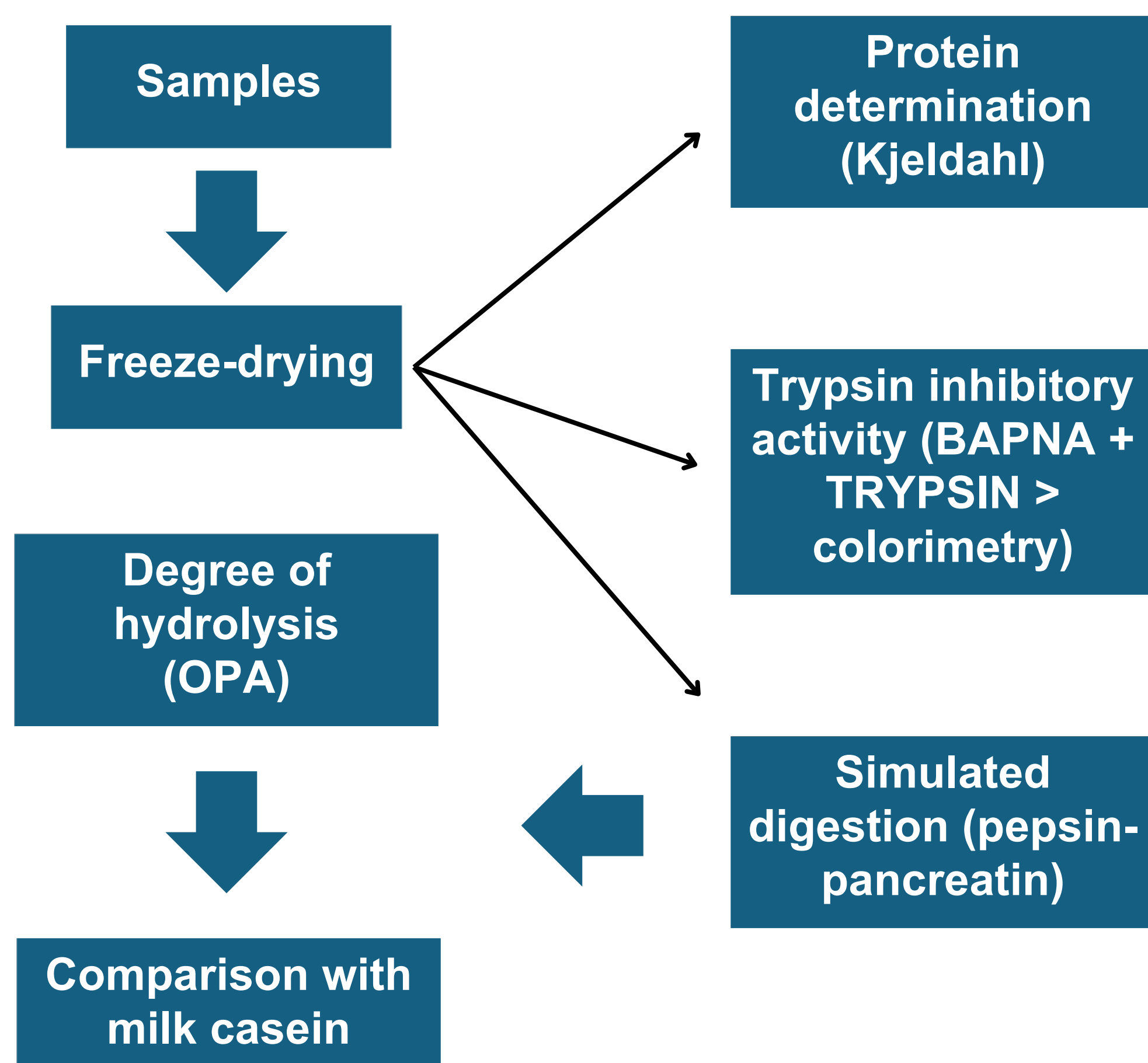
When analyzing the nutrients available in these foods for human consumption, it is worth noting that their quantities are variable and depend on factors such as grain cultivation and preparation techniques. However, in general, legumes are classified as primary sources of fiber and, especially, protein (Aloimira et al., 2023).

Their isolated proteins are a frequent target of the food industry because they are low cost and easy to extract. Some protein components present in these foods (such as enzyme inhibitors, lectins, and storage globulins) and their derived peptides have shown great nutraceutical potential (Jayaraman et al., 2022). Many studies point to their hypocholesterolemic, antioxidant, and immunostimulatory actions (Jakobek et al., 2007; Huang et al., 2019). Even substances previously considered antinutritional factors have shown controversial results, depending on their proportions (Anderson et al., 2023; Chukwu et al., 2022).

Recent research indicates that daily consumption of 200 g of cooked legumes can promote health and aid in the prevention of chronic diseases in the long term (Aloimira et al., 2023; Jayaraman et al., 2022).

That said, given their importance for human nutrition, this paper discusses the nutritional quality of legume protein. The present study aims to evaluate relevant nutritional characteristics in legumes. The research conducted here aims to perform in vitro tests to determine the protein digestibility of legume-based preparations marketed in the municipality of Alfenas, MG, Brazil.

METHOD



RESULTS & DISCUSSION

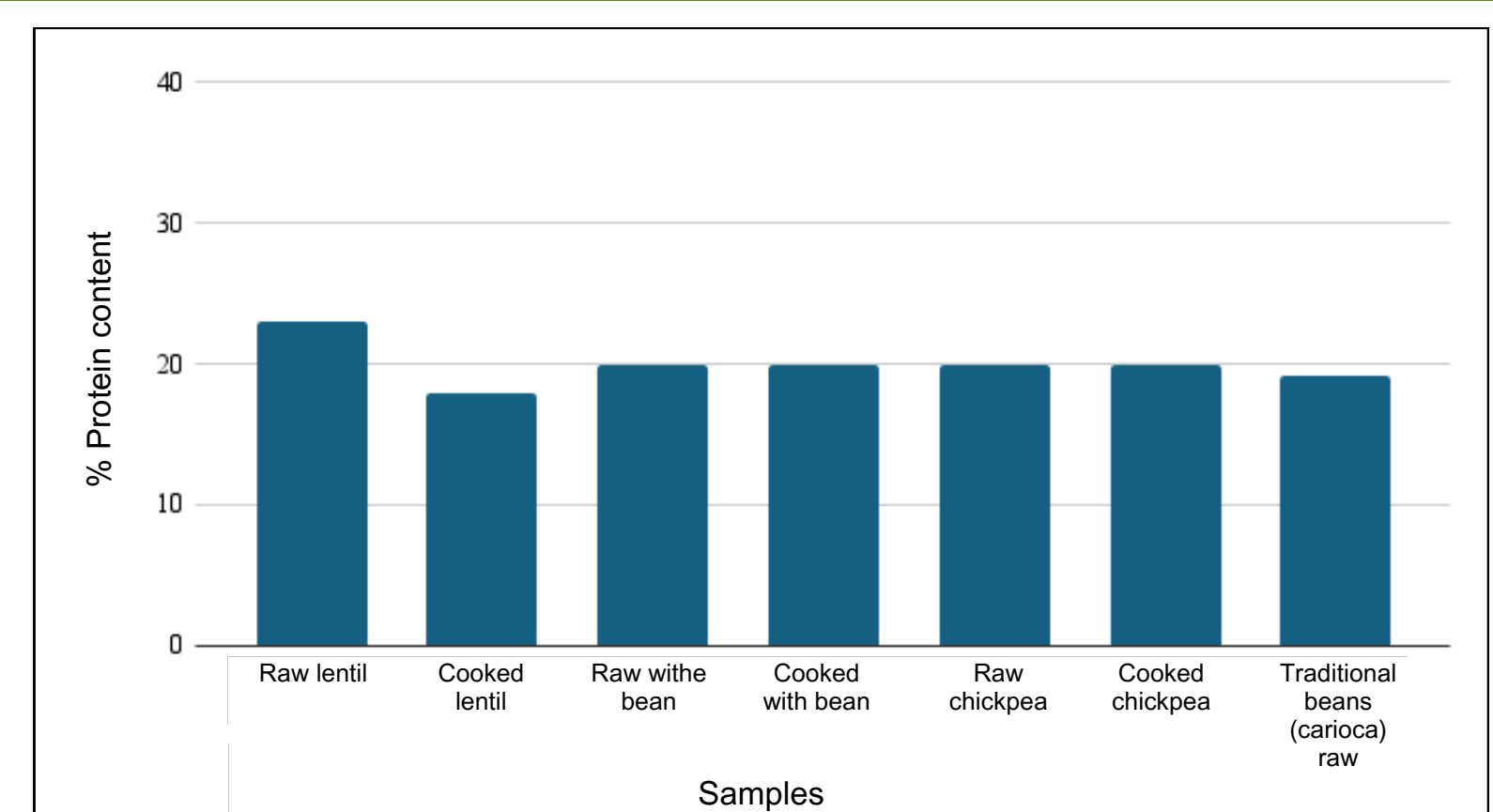


Figure 1 - Protein content per sample.

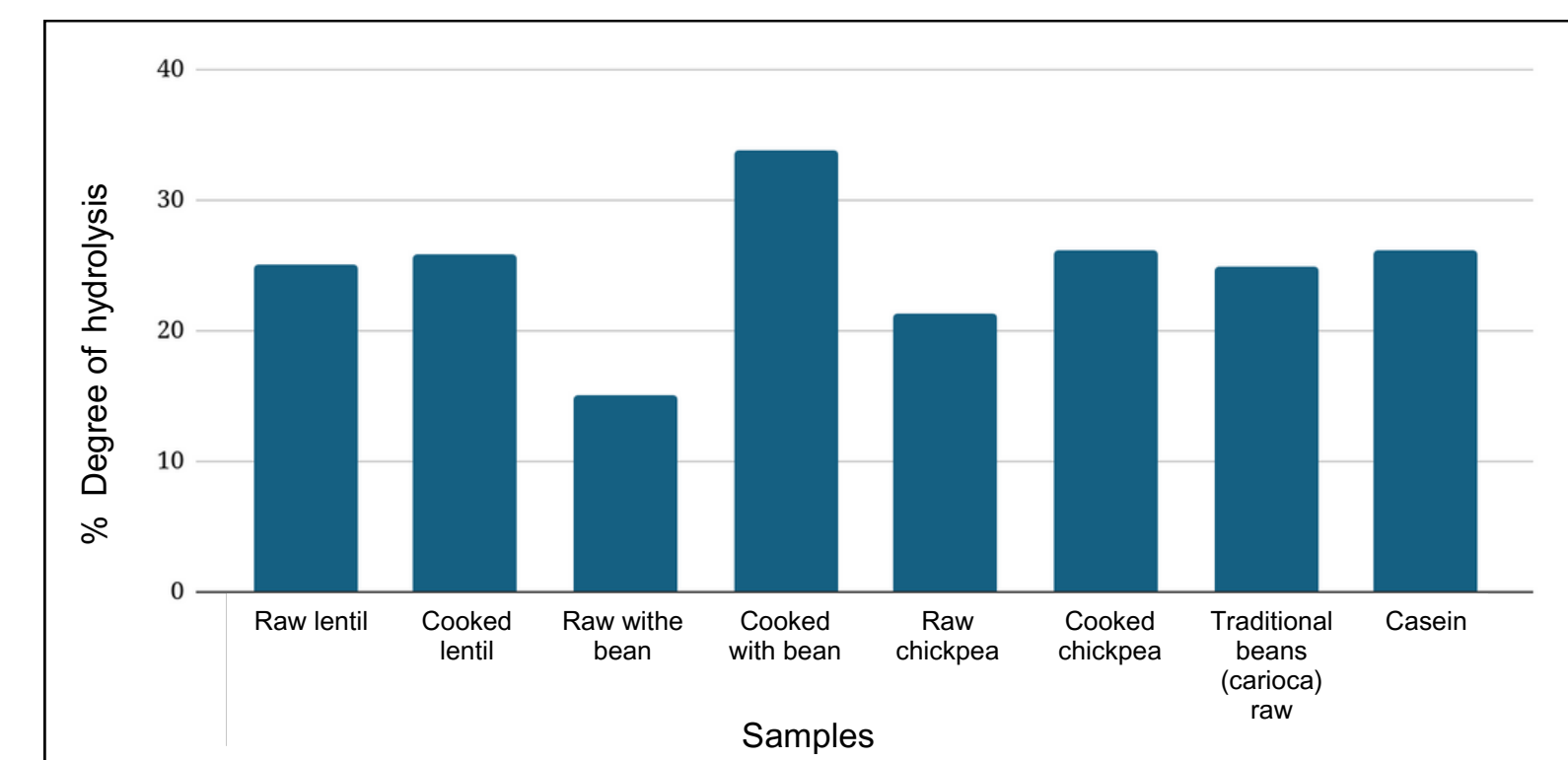


Figure 2 - Degree of hydrolysis.

Samples	% digestibility relative to casein	TIU (Trypsin Inhibition Unit per)/g
Raw lentil	95.54	362.66
Cooked lentil	98.42	1271.23
Raw white beans	57.23	483.09
Cooked white beans	128.77	867.74
Raw chickpeas	81.27	41.48
Cooked chickpeas	100.03	1205.28
Traditional beans (carioca) raw	95.33	1392.87

CONCLUSION

The difference in protein content and digestibility between cooked and raw grains is evident. Regarding trypsin inhibition, the results differed from what was expected.

FUTURE WORK / REFERENCES

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