



Conference Abstract

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Competing Interest

The authors declare no competing interests.

Additional information is available at the end of the article.

Conference Abstract

APPLICATION OF THE INDICATOR AMINO ACID OXIDATION TECHNIQUE TO STUDY THE BIOAVAILABILITY OF LYSINE IN WHEAT AND PAIRED WITH LENTILS TO MAKE A COMPLETE PROTEIN MIXED DIET

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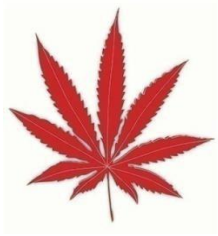
Key words: Amino Acid Oxidation, Wheat.

Abstract

The protein quality (PQ) of wheat, limiting in Lysine (Lys), is understudied directly in humans. Allah says in the Holy Quran: "And of everything have We created pairs, that you may reflect." (51:50). Wheat and pulse mixed diet (MD) improves PQ of the meal, but data on combination ratio studied in humans is lacking. The Quranic verse may be extrapolated to consider that Allah created even foods as pairs, and we hypothesize that this stands true for PQ of MD (wheat + lentil). Thus, the study aims to:

- 1) estimate the PQ of wheat (bread) by assessing the metabolic availability (MA) of Lys, and
- 2) determine the effect of bread and lentil stew as a MD on the combined PQ of the meal to reflect if they make up a complete pair.

For this, we used the indicator amino acid oxidation method in 5 healthy adult males, a repeated measures design. Based on the slope-ratio principles, L-[1-13C] phenylalanine oxidation to ¹³CO₂ in response to graded Lys intakes fed as crystalline amino acid (reference protein), wheat (test protein), and wheat complemented with lentil (MD) provided the MA and MD effectiveness. Despite being of limiting concentration, we found the MA of Lys in yeast-leavened bread is 90%. Complementation with lentils reduced phenylalanine oxidation to ¹³CO₂, reflecting augmented Lys content of MD which is bioavailable. Thus, this study provides scientific application and evidence to the verse from Holy Qur'an. We recommend a combination ratio of 2:1 wheat to lentil protein.



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