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Amino acid profiles and digestible indispensable amino acid scores of proteins from the selected prioritized key foods in Bangladesh

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Statement of the Problem: Protein is a source of energy and the major functional and structural constituent of all cells of the body. Despite of protein's endeavor of the anticipated roles, there is lack of valid and reliable information on amino acid composition and protein quality of commonly consumed foods of Bangladesh. The purpose of this study is to evaluate and determines the worth of amino acid composition of the dietary protein by estimation of amino acid composition in 10 prioritized key foods of Bangladesh as major dietary protein sources.

Methodology & Theoretical Orientation: Concentrations of standard amino acids were determined in the composite samples (representing 30 agro-ecological zones of Bangladesh) of 10 prioritized key dietary protein sources: *Oryza sativa* (rice), *Triticum aestivum* (wheat flour), *Lens culinaris* (lentils), *Pangasius pangasius* (pangas), *Labeo rohita* (rohu), *Oreochromis mossambicus* (tilapia), *Bos taurus* (milk), *Gallus bankiva murgha* (egg) and *Gallus bankiva murgha* (chicken leg & breast). Indispensable amino acids (IAAs) profile determines the quality of food protein rather than quantity of protein in a food.

Findings: IAAs contents (mg IAA/g protein), found to be highest in pangas (430) and lowest in wheat (336), of all these analyzed foods exceeded the FAO recommended daily allowance (277 mg IAA/g protein) and contributed on average 40% to total amino acid content. Digestible indispensable amino acid scores (DIAAS) was calculated using published data on amino acids digestibility to evaluate the protein quality of these foods.

Conclusion & Significance: Un-truncated DIAAS values ranged from 51% (lysine) in wheat to 106% (histidine) in pangas and distinguished pangas, rohu, and tilapia containing excellent quality protein (DIAAS>100%) with potential to complement lower quality protein of cereals, fruits, and vegetables. Explore new approaches of protein quality evaluation and its implications in the local context for complimentary feeding and food supplementation to promote growth of young children.

Biography

Nazma Shaheen has her expertise in research and teaching in Nutrition particularly food composition, food functionality, micronutrient malnutrition and health. She has made significant achievements in food-composition-model that links at global level. Currently, she has been serving the Institute of Nutrition and Food Science, University of Dhaka as Director. Her research covered the areas of nutrient content of foods, functionality of commonly consumed foods and heavy metals with food safety concerns.

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