CHEMICAL SCORE AS AN EFFICIENT PARAMETER TO EVALUATE PROTEIN QUALITY IN MILK FORMULAS

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The FAO/WHO/UNU has adopted the chemical score as an efficient method to determine the protein quality of food, for being simple and reproducible compared to biological methods. In Venezuela, an inadequate supply of milk has resulted in the production of milk formulas modified to be used in nutritional protection programs and distributed in stores. Nutritional information of these formulas only indicates the amount of protein but their quality is unknown. The objective of this research was to use the chemical score to evaluate the protein quality of commercial infant formulas. Four samples of different brands were selected, to which proximate analysis, in vitro digestibility, available lysine, amino acid profile and chemical score corrected for digestibility (PDCAAS) were determined. The results were as follows: moisture between 1.9% and 3.3%, protein between 15.3% and 23.1%, fat between 3.4% and 25.4%, ash between 2.9% and 6.0%, carbohydrates between 42.2% and 75.4%, energies between 395 and 490 kcal/100 g, digestibility between 83% and 86% and available lysine between 4.4% and 10.8%. PDCAAS values were between 26.74% and 83.56%, tryptophan being the first limiting essential amino acid most frequent in the samples. It was concluded that the formulas analyzed have acceptable protein quality based on tryptophan requirements for children 2-5 years, as established by the FAO/WHO/UNU. Nutritional information provided by manufacturers is correct and in accordance with relevant applicable standards. The method is an effective, fast and economical way to evaluate protein quality compared with the official biological method PER (Protein Efficiency Ratio).