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Nutritional Improvement of Food and Feed Proteins

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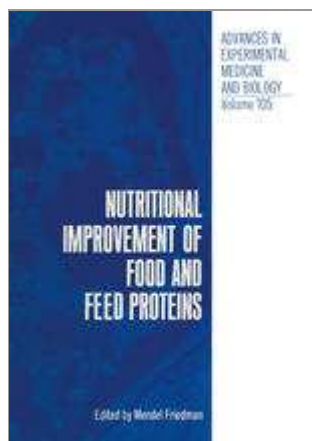
## Nutritional Evaluation of Oilseeds and Legumes as Protein Supplements to Cereals

### Abstract

Several oilseed and legume protein products were fed to rats as the sole source of dietary protein, and in blends with cereals for the determination of protein efficiency ratio (PER) and biological availability of amino acids. In addition oilseed protein isolates were fed to mice for the determination of PER. Results of the mouse study revealed that the adjusted PER (casein=100) for Target rapeseed isolate (108) was higher than those of sunflower (74), safflower (77), soybean (86) or flax (92) isolates.

Results of the rat trials revealed that the adjusted PER for Tower rapeseed meal (88) was higher than those of fababean (21), field pea (59) and soybean meal (72). Supplementation with methionine (0.2%) resulted in improved PER for fababean (84), field pea (101) and soybean meal (97). Mustard flour and rapeseed flour gave PER of 109 and 106, respectively, while the value of sunflower flour was low (56).

Protein isolates of Tower rapeseed and soybean gave PER of 92 and 80, respectively. Blending of legumes and oilseeds with wheat flour (PER=28) gave high PER values (60–85), as also occurred in rice blends (71–88). Supplementation of wheat-legume blends with lysine (0.4%), methionine (0.2%) and threonine (0.1%) brought all PER values above 100. It appeared that differences in PER of the diets paralleled the levels of the first limiting amino acid for rat growth. Results of balance trials indicated that the availability of the limiting amino acid(s) was lower than other essential amino acids for each protein source.



### Citations

## Related Content



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