

KULVADEE BHUMISAWASDI : FORMULATION AND NUTRITIONAL EVALUATION OF
SOY PROTEIN ISOLATE-BASED MEDICAL FOOD POWDER. THESIS ADVISOR :
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The process on preparation of soy protein isolate-based medical food was studied. Extracting protein from defatted soy flour with deionized water at PH 9 gave 39.42 percent yield. Soy protein isolate powder consisted of 2.92, 88.15, 0.30, 2.45 and 6.18 percent of moisture, protein, fat, ash and carbohydrate respectively. S-containing amino acids, methionine and cystine, are limiting amino acids.

The composition of the studied formula was as followed soy protein isolate, carbohydrate (maltodextrin: sucrose 70:30) corn oil, MCT oil and lecithin (0.4 gm./100 ml. ready to drink product). The formula consisted of 2.86, 17.31, 19.29, 1.39 and 59.15 percent of moisture, protein, fat, ash, carbohydrate and fiber respectively. It provided 479.45 Cal. per 100 gm. powder. Caloric distribution from protein, fat and carbohydrate were 14.44, 36.21 and 49.35 respectively. Non protein calories : nitrogen ratio was 148.11 Cal. per 1 gm. nitrogen, Lysine was limiting amino acid of the formula.

Protein quality of the two formulas were compared with standard casein formula and the imported formula using rat bioassay. Mean values of BV, TD and NPU of rats fed the formula fortified with 1.2 gm. DL-methionine per 16 gm. nitrogen group were 92.19, 83.54 and 77.03 respectively with no statistical difference ($P < 0.99$) from those rats fed imported formula. The PER (2.43) and NPR (3.41) obtained from rats also gave no statistical difference from the standard casein group.