

BIO-TECHNOLOGICAL INTERVENTION IN DEVELOPING WEANING FOOD WITH ENHANCED NUTRITIONALLY AND FUNCTIONALITY

H M Jayaprakasha and Mahadeviah

Karnataka Veterinary, Animal and Fisheries Sciences University, India

The investigation was undertaken to elicit the effect of utilization of enzymatically hydrolyzed whey proteins and probiotics in enhancing the functionality of weaning food. Weaning food was formulated by the admixture of malted ragi, wheat and green gram along with refined vegetable oil, sugar and other ingredients. Spray dried whey protein concentrate (WPC) was enzymatically modified by using Neutrase enzyme. Modified WPC was used as an ingredient to replace green gram protein at different levels. The probiotic cultures, *Lactobacillus acidophilus* (LA) and *Bifidobacterium bifidum* (BB) were grown separately in a whey medium and blended with WPC Hydrolysates and dried by fluid bed drying techniques. Whey protein hydrolysate carrying bioactive peptides and probiotics was used to replace conventional proteins in weaning food. Study revealed that 6% hydrolysis of protein attained at enzyme to substrate ratio of 1:25 at 40 oC for period of 2 hours was optimum. Inoculation of probiotics at 10% level to the product was found to be necessary to get maximum viable counts of 65×10^7 cfu/g with respect to LA and 52×10^7 cfu/g with respect to BB cultures in the formulated weaning food. Replacement of 30% proteins of weaning food with WPC hydrolysates carrying bioactive peptides and probiotics resulted in highly acceptable weaning food. Bioassay studies revealed that the diet having whey protein hydrolysates was superior with respect to protein efficiency ratio (3.42), feed efficiency ratio (0.41) and net protein ratio (3.72) as compared to other diets. The group of rats fed with hydrolyzed WPC weaning food had shiny eyes, long elongated body and were very active as compared to other groups of rats. These results could be further extrapolated to human subjects to provide various health benefits to neonates besides supplementing balanced nutrition so as to fully derive the functionality and nutritionality of such weaning foods.

profhmpj@gmail.com