

Enzyme Combination is an Emerging Trend to Generate Antioxidative Hydrolysates from Buffalo Sodium Caseinate with Better Sensory Properties

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Abstract—Buffalo casein was hydrolysed using commercial enzyme preparations (Flavourzyme 1000 L and Alcalase 2.4 L) (Novozymes) alone or in combination under optimum conditions of pH and temperature and varying the enzyme to substrate ratio as well the period of hydrolysis. Non cellular antioxidant activity using ABTS, DPPH, FRAP, ORAC was used in evaluating antioxidant potential of hydrolyzed protein and peptides enriched preparations. The degree of hydrolysis (DH %) using OPA method and radical scavenging activity of buffalo casein hydrolysates were found maximum for sequential treatment of alcalase and flavourzyme. Treatment of alcalase and flavourzyme resulted in caffeine isointensity of bitterness <3mM showing that treatment of endo-exoproteases resulted in decrease in bitterness together with improvement in antioxidant activity. The ability of these hydrolysates to interact with radical species or to inhibit oxidative reactions could lead to the development of novel food ingredients and disease prevention. The consumption of antioxidant rich protein source may prove an effective strategy to offset some of the deleterious effects of aging.