

Effect of antioxidative activity and polyphenol content in fermented soy milk

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ABSTRACT : Soybean is a rich source of isoflavone, which are reported to have beneficial estrogenic effects with potential bioactive antioxidant properties. Probiotic lactic acid bacteria when grown in soy milk with or without added whey protein concentrate have the ability to utilize phenolic components producing phytase enzyme and reduce the polyphenol content after fermentation. Soymilk is fermented with probiotic lactobacilli (*Lactobacillus rhamnosus* NCDC 19, 24 and cheese isolates: C2, C6 and *L. casei* NCDC 17, 297) @1.0% for 24h at 37°C. We find that in fermented soymilk both the inhibition of ascorbate autoxidation, and the reducing activity of polyphenol content and increasing of proteolysis varied with the starters used, but nevertheless are significantly higher than those found in unfermented soymilk. Thus, soymilk was supplemented with 1.5% whey protein concentrate 70 (WPC70). WPC70 enhances the bacterial growth in soy milk medium and also increases the antioxidative activity and proteolysis activity of these six probiotic lactobacilli cultures. Antioxidative activity was measured following three methods (ABTS, DPPH and FRAP). *L. rhamnosus* C6 strain showed maximum antioxidative activity and proteolytic activity as well as reduced polyphenol content among these six lactobacilli cultures. However, soy based probiotic foods can be nutritionally beneficial with these health benefits.

Key Words: Antioxidant; polyphenol; soy milk; fermentation; lactobacilli, probiotic.