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Technology for utilization of tofu whey as growth media for production of probiotic strains and study of antioxidant activities

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Abstract

Soybean proteins offer special benefits not found in many other protein foods and thus are being used to replace some dairy foods, or in diet. Tofu whey, a by-product of tofu manufacturing, is currently discarded by most soybean processing industries can be used as a good source of carbohydrates, some free amino acids, isoflavones and protein. Tofu whey contains valuable compounds like non-digestible oligosaccharides (NDO) and recognized as prebiotics. In the manufacture of tofu, soymilk is coagulated by heating, in combination with salts, acid or enzymes. This generates a liquid byproduct called tofu whey (TW). The tofu whey is highly perishable and needs effective utilization. There are very little reports on the use of tofu whey as a medium base for the production of lactic starters. In the present investigation the tofu whey has been utilized for production of probiotic strain (*Lactobaccilus.casei*- NCDC 012) and test antioxidative activity of supernatant from fermented tofu whey to find out their nutraceutical potential. TW used in this study contained several sugars as supplements, but probiotic strains showed satisfactory result in few sugar supplements. The lactobacilli population obtained in MRS culture medium was found to higher than that in TW alone, and supplementation of TW was thus examined. Several combinations with yeast extract and tryptone was also used for nitrogen source and tryptone was found best source for growth. Addition of yeast extract, buffer and glucose to TW was found to show higher populations up to $1.7X10^9$ cfu/ml. Tofu whey was fermented for 24 and 48 h. Antioxidative property was assessed by DPPH (2,2-diphenyl-1-picrylhydrazyl) scavenging activity. All fermented tofu whey extracts exhibited a potentially antioxidant activities, but with 48 h incubation gave significant highest antioxidant activity.