

Development of membrane separation process in red ginseng marc fermentation

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The fermentation broth of red ginseng marc (RGM) has strong antioxidant activity, and can be used in the field of food and cosmetics. However, the removal of microorganisms and sludge from fermentation broth is not easy due to the high viscosity of culture broth. This hampers the commercial application of useful fermentation product of red ginseng marc. Thus, we developed an efficient separation process in red ginseng marc fermentation. Our process consists of two steps: gravitational sedimentation of sludge, membrane separation. Most of sludge was settled down in the sedimentation step, but the microorganisms were still suspended in the culture broth. Since sludge-free fermentation broth has a similar viscosity to that of water, the membrane filtration can be easily applied to this culture both. Plate-and-frame filter press was employed for the removal of microorganisms from culture broth and the pore size of filter paper used was ranged 0.3 ~ 0.9 μ m. Our separation strategy was successful for obtaining sludge- and cell-free liquid from red ginseng fermentation culture broth.