

A biotransformation method for producing natural edible red colorant from traditional Chinese medicine by the probiotic

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The natural edible colorants are widely used as food colorants in Japan and Asia. Recently, the concept of food safety has been increased by days. The requirement of natural food colorants is getting more and more in industries. In order to produce natural food colorants, we develop a biotransformation system to produce natural edible red colorant by traditional Chinese medicine *Gardenia*, which has been used to produce yellow and blue colorants depending on various reaction conditions. As described by the Food and Agriculture Association of the United Nations and World Health Organization, probiotics are a group of live microorganisms that, when administered in adequate amounts, confer a health benefit on the host.

Lactobacillus and *Bifidobacteria* are the two most common types of microbes which are extensively used as probiotics. They are broadly used in lots of fermented food to alter the composition, nutrition, taste or smell. It also can be used as biotransformation systems to convert traditional Chinese medicine into effective compounds. In previous study, we used the probiotic *Lactobacillus rhamnosus* strain JB3 to produce natural edible colorant gardenia blue. We then modified the reaction condition to prepare gardenia red. The colorants stability was examined by the ration of wave length of red light (OD₄₅₀) and blue light (OD₅₃₀). Using probiotics to produce natural edible colorant could increase the safety of colorants and enhance the application of *Gardenia*.

Key words: natural edible red colors, *Gardenia*, probiotic