

Production of 2,3-butanediol as a raw material for cosmetics

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2,3-butanediol (2,3-BD, C₄H₁₀O₂) one of the products of fermentation, has potential applicability in a broad range of industries for producing moistening and softening agents, printing inks, cosmetics, plasticizers and explosives, fumigants, spandex, and pharmaceuticals. 2,3-BD exists in three stereoisomers, the (2R,3S)-, (2R,3R)-, and (2S,3S)-forms, and each stereoisomer has different physiochemical properties. We developed a microorganism by mutation method for (2R,3S)-BD as an cosmetic ingredient. The high concentration, yield, and productivity of 2,3-BD were achieved by fed-batch fermentation up to 113 g/L, 0.45 g/g, and 2.1 g/L/h, respectively. To evaluate the applicability and functionality of (2R,3S)-BD for a cosmetic ingredient, we carried out several tests such as patch response test, MIC test, and etc.. [This work was supported by the Biochemical Industry Promoting Technology Development Project (No. 10050407) funded by the Ministry of Trade, Industry & Energy (MOTIE, Korea).]