Co-Cultivation of Three Main Genera Found in Effective Microorganisms

의광배[1], 문이슬[1], 오하나[1], 김영준[2], 구윤모[1,2,*]
[1]인하대학교;
[2]ERC for Advanced Bioseparation Technology
(ymkoo@inha.ac.kr*)

Recently, effective microorganisms(EM) is applied in many bio-chemical research fields such as agriculture and bioremediation. Its effectiveness is properly believed to vary with the ratio of main genera. Thus, quantitative analysis of EM is essential for the practical application of EM. EM contains selected species of microorganisms including predominant populations of lactic acid bacteria, yeasts, and much smaller population of photosynthetic bacteria, actinomycetes and other types of organisms. In this study, After pure culture of each strain, they were co-cultured in modified YH medium. During co-culture of R. phaeroides and S. erevisiae, high cellular growth rate similar to those in its optimal medium was observed. However, when L. plantarum was added to R. sphaeroides and S. cerevisiae, cellular viability of R. phaeroides was decreased by acidic condition resulted from the formation of lactate. In order to minimize this negative effect of *L. plantarum*, various fermentation parameters such as fermentation time, inoculum volume, temperature and pH were optimized. The maximum cell concentration of *R. sphaeroides* of 5.80 x 10^4 CFU/ml was obtained at 30 ℃ under illuminated condition.