

P7-87

Antimicrobial Effect of Chitosan on Gel Type Food for the Clinical Use

Ki Hoon Kim, Hyun Ju Choi* and Dong Suk Lee. Department of Med. Lab. Sci., Inje University

Chronic illnesses have been a critical health problem in our society, and a development of food for the specific clinical use seems to be demanded. Chitosan has known as one of the functional food materials since it has many beneficial biological activities, and buckwheat has also known as an antidiabetic due to its hypoglycemic activity. In this study, gel type food using chitosan and buckwheat flour for the clinical use was prepared without adding any chemical preservatives. Texture of gel was measured using a Rheometer. It was found that the hardness was significantly decreased as the greater amount of chitosan was added ($p < 0.05$). Gel samples were stored for 24 hr at the temperature of 25°C, and incubated in Luria-Bertani medium for 24 hr at 37°C, and then a bacterial colony forming unit (CFU) was counted. The results show that CFU of buckwheat gel without chitosan was 17.1 times greater than that of control corn starch gel without chitosan, showing that the buckwheat gel is more likely to get the bacterial contamination at room temperature than the corn starch gel. Colonies on the chitosan gel sample was observed using an image analyzer system, and the major bacteria was identified as *Bacillus* sp. In another experiment for preservative properties during storage, gel samples were stored for 11 days at the temperature of 10°C, and the CFU was also counted. In results, the antimicrobial effect of chitosan (7.5%) in the gel sample was observed up to the 7th day of the storage period. It is concluded that the buckwheat gel type food without any chemical preservatives may get a bacterial contamination easily compared to the corn starch gel, however its preservation can be improved by adding chitosan.

P7-88

Bacillus megaterium SMY-212를 이용한 온도별 청국장의 이화학적 특성 변화

손소희^{1*}, 손미예¹, 권선화¹, 박석규^{1,2}, 최진상^{1,3}.

¹한국전통발효식품연구소, ²순천대학교 식품영양학과, ³진주산업대학교 식품가공학과

재래 청국장에서 분리한 *Bacillus megaterium* SMY-212는 청국장의 발효과정중에서 단백질 및 전분질의 분해와 혈전용해능을 중심으로 검색을 한 것으로 청국장 제조시 점질물의 형성이 우수하고 불쾌취 생성이 비교적 적기 때문에 청국장 냄새억압과 품질증진에 효과적인 청국장 발효균이다. 또한 SMY-212 균주는 청국장 제조에서 *Bacillus subtilis*를 포함한 다른 청국장 균주로 이용되는 것에 비하여 발효 및 생육 온도범위가 약간 넓고, 균 증식속도가 빠르다. 특히 효소활성(protease, amylase)과 혈전용해능이 강하고, 항균성 bacteriocin물질로 'megateriocin'을 많이 생성하는 특성을 가지고 있다. 본 발표에서는 SMY-212 균주를 첨가한 대두 청국장의 품질특성을 발효온도별로 평가하기 위하여 대두를 침지, 증자 및 세절한 후 SMY-212 균주를 첨가하여, 온도별로 3일간 대두 청국장을 발효하였으며, 시간의 경과에 따른 pH, 총산, 총당, 환원당, 수용성 및 염용해성 질소, 텍스처, 효소활성, 관능검사 및 생균수 등의 이화학적 특성 변화를 조사하였다.