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Induction of *Monascus* sp. Mutant Producing Increased Levels of Monacolin K by Gamma-Irradiation

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Monascus isolate No. 711 which is capable of producing monacolin K as an inhibitor of 3-hydroxy-3-methylglutaryl Coenzyme A reductase, key enzyme of cholesterol synthesis, was screened from Ang-kak already. For increasement of the monacolin K producing activity of this strain, the γ-ray, does of 0.5, 1, 2.5 and 3.0 KGy, was treated to the 10^5 spore suspension of the *Monascus* isolate No. 711. Successive isolation was found to improve the yield of monacolin K. The isolation was divided into two main procedures. Primary isolation was carried out by the anti-fungal bioassay using *Asp. nidulans* as a test organism. The secondary isolation was HPLC analysis that is quantitatively conducted for the determination of monacolin K. As the result of these isolation, several mutants that had higher productions of monacolin K than that of the parent strain were isolated. While, to prove the potential productivity of mycotoxin, citrinin, from the isolate, all the isolated strains were cultured on Yeast Extract Sucrose(YES) broth for 10 days and were extracted with chloroform. The extract was developed on TLC plate with chloroform and methanol (3:1 v/v). With the developed TLC, bioautography was performed with test organism, *B. subtilis*. For the highly sensitive analysis of citrinin, HPLC was used with fluorescence detector (λex=231, λem=500). As the result of the citrinin detection, it was found that two isolates No. 71126 and No. 71128, which had the high production of monacolin K showed the production of citrinin. So two strains were excluded. Isolate No. 71109 which was one of the highest monacolin K producing strains, has been finally selected because of its high production of monacolin K and non-production of citrinin. The production of monacolin K of isolate No. 71109 was approximately 10 times higher than that of isolate No. 711.

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식품유해성 미생물에 대한 백작약(*Paeoniae radix alba*) 및 사군자(*Quisqualis fructus*) 메탄올 추출물의 항균활성

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백작약 및 사군자 메탄올 한약재를 메탄올로 추출하여 식품 유해성 미생물에 대한 이들의 항균 효과를 조사하고, 최소생육저해농도(MIC)를 측정하였다. 메탄올 추출시료를 filter paper로 여과시키고, 회전 진공증발기로 50℃에서 농축한 후 syringe filter(cellulose acetate membrane, pore size 20㎛)로 제균하였다. 이용한 실험균주는 세균(*Escherichia coli, Pseudomonas aeruginosa, Salmonella typhimurium, Klebsiella pneumoniae, Staphylococcus aureus*)과 곰팡이(*Fusarium solani, Aspergillus flavus, Penicillium citreonigrum*)이었으며, 항균효과는 paper disc법을 이용하여 검색하였다. 세균은 nutrient broth에서, 곰팡이는 potato dextrose broth를 사용하여 계대 배양하여 600 nm에서 OD 0.3이 될 때까지 배양하였다. 이를 plate에 150 ㎕씩 분주하고 이 위에 멸균된 disc를 올려 놓은 뒤 여기에 농축된 시료를 60 ㎕씩 주입하고 세균은 35℃에서 24시간, 곰팡이는 25℃에서 48시간 동안 배양하여 성장억제환의 크기를 측정하였다. 또한 대조군으로 benzoic acid의 항균활성도 위와 같은 방법으로 측정하였다. 항균효과를 조사한 결과 백작약 및 사군자는 *S. aureus, K. pneumoniae*에 대하여 항균효과를 보였으며, MIC를 측정한 결과 백작약은 300 mg/ml의 농도에서 *S. aureus*의 생육을 억제하였고, 사군자는 200 mg/ml의 낮은 농도에서 *K. pneumoniae*의 생육을 억제하였다.