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밥의 품종판별을 위한 DNA 추출 방법

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양곡의 표시사항 중 품종이 의무사항이 되었고, 국내산 쌀 뿐만아니라 수입된 찐쌀 및 시판용 쌀의 판매가 되면서 내년 1월부터 100㎡ 이상 일반음식점에서도 원산지 표시가 시행될 예정이다.
이에 따라 밥을 원료로한 품종판별을 보다 손쉽게 하고자 DNA 추출방법에 대한 실험을 수행하였다. 실험방법은 밥알이 들어있는 튜브에 2% CTAB 버퍼용액을 이용하여 추출하였으며, 이 과정에서 내열성 알파-아밀라제 효소를 넣어 유전자 추출과 함께 유전자 추출과정에서 방해가 되는 호화전분을 분해하고, 이어지는 단백질을 침전시키는 정제과정을 통하여 밥에 함유되어있는 DNA를 안정적으로 추출하는 것이 주요한 구성이다. 밥에서 추출한 DNA를 이용하여 SSR-PCR 후 변성 아크릴아마이드 전기영동으로 원료미의 품종판별을 실시하여 밥의 품종 판별이 가능함을 확인할 수 있었다.
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Identification of chalkiness development of milled waxy rice with harvest times and the moisture contents

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Variation of chalkiness expression in milled waxy rice with the moisture contents of grains was investigated using instrument and naked eye evaluation methods. Also, to find out any effects of varieties and harvesting times on the chalkiness development, paddies of seven waxy varieties harvested at early, optimal and late times were tested after being sun-dried to have three different moisture contents of about 13~14.5, 14.5~16.0 and above 16%. The moisture contents were distributed in the ranges of about 13.0% to 17.5% with the drying intensity right after harvesting. Although there were some genetical variations in whiteness and degree of transparency of milled rice grains among varieties at the same condition, chalkiness was most significantly affected by the changes of moisture content in all waxy varieties and harvesting times tested. At the moisture content less than 13.5%, all varieties exhibited waxy unique chalkiness, and at the moisture ranges between 13.5% and 14.0% the chalkiness was more or less affected by harvesting time and varieties. At the moisture content ranges between 14.0% and 16%, chalkiness disappeared more and more with the increase of moisture content. However the degrees of chalkiness loses were strongly depended on individual kernels by showing as if the number of non-waxy rice kernels would be increasing in waxy rice grains with the moisture content increase. At the moisture content above about 16%, all waxy kernels lost their unique chalkiness, and showed non-waxy rice appearance.
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