

<국문>

숙성온도 및 숙성기간에 따른 쌀소스의 품질 특성 변화

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본 연구에서는 다양한 숙성 조건에서, 쌀소스의 품질 및 관능 특성을 평가하였다. 35°C에서 120일간 숙성한 쌀소스의 수분 함량은 55.08%였으며, 색도는 명도(brightness, L) 38.90, 적색도(redness, a) -1.22의 값을 나타냈다. 숙성기간이 증가함에 따라 황색도(yellowness, b) 값은 점차 증가하는 경향을 보였으며, 반대로 pH는 감소하였다. 총질소 함량은 120일 숙성군이 90일 숙성군보다 높은 수준을 나타냈다. 관능평가 결과, 맛, 향, 기호도 항목에서 120일 숙성군이 90일 숙성군보다 높은 점수를 받았다. 이상의 결과를 종합하면, 35°C에서의 120일간 숙성이 관능 품질이 우수한 쌀소스를 제조할 수 있는 가장 적합한 조건인 것으로 판단된다.

<영문>

Improved quality of 'Kara' mandarin (*Citrus unshiu*) during storage using the hydrogels incorporating wintergreen essential oil-loaded nanostructured lipid carriers

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The objective of this study was to delay the deterioration of 'Kara' mandarins by coating the maize starch/chitosan-based hydrogels embedding wintergreen essential oil-loaded nanostructured lipid carriers (W-NLCs) during the storage. As the concentration of Tween 60 increased from 5.0 to 10.0% for preparing the NLCs, the particle sizes of both W-NLCs and blank carnauba wax nanoparticle (CWNP; prepared without essential oil) were decreased while the production yield and encapsulation efficiency (EE) were increased. However, when the concentration of Tween 60 increased from 10.0 to 12.5%, the particle sizes were rather increased while the yield and EE were decreased, which would be attributed to the partial coalescence between the particles. According to the disc diffusion assay with *Penicillium digitatum*, a main microorganism in the deterioration of mandarins, the inhibitory effects were great in the descending order of wintergreen essential oil, W-NLC, CWNP, and PBS. Notably, among the mandarins inoculated with *P. digitatum* and stored at 25°C for 24 days, the mandarins coated with W-NLC-hydrogels exhibited the most minimal deterioration in the weight loss, moisture loss, and color change. This result would be contributed to the effective antifungal inhibition against *P. digitatum* by coating W-NLC-hydrogels. In conclusion, the W-NLC-hydrogel-coating can successfully delay the growth of *P. digitatum* and effectively prolong the shelf life of post-harvested mandarins.