

Abstract

A nano packaging material containing nano Ag, nano TiO₂, nano attapulgite and SiO₂ was prepared, and its impact on quality of Nanjing 9108 rice at 37 °C and 85% relative humidity was studied. Effects of the packaging on ambient gases and chromatic aberration of rice were determined. Moreover, oxidation level, molds growth and flavor of rice were also analyzed. Results showed that nano packaging material had antimicrobial effects and maintained low O₂ and high CO₂ content in the packages. The packages thereby inhibited the growth of molds and the production of fatty acids, restrained the increase of lipase activity, and reduced the oxidation of fats and proteins. As a result, the production of yellow and white-belly rice were inhibited. Furthermore, the color and flavor of rice were maintained. Therefore, the nano-packing material could be applied for preservation of rice to improve preservation quality.