Development of pure culture starter using a white-spored mutant of koji mold, K-1A for kecap, an Indonesian soy sauce

Abstract

In order to prevent aflatoxin contamination in the production of kecap, an Indonesian soy sauce, the starter culture was prepared using the white-spored mutant K-1A strain induced from the aflatoxinnegative koji mold, Aspergills sp. K-1 and applied to koji making process of kecap. The number of spores developed on the cooked rice inoculated with K-1A was not so different from that of K-1. The germination ability of K-1A after storing at 30°C and 75% RH for 3 weeks was also not so different from that of K-1. While kecap koji making process took 9 days by conventional method (without inoculum), the use of the starter culture shortened the process to 3 days at room temperature. Since the inoculated strain K-1A developed white conidia (spores) during incubation, the mutant could be distinguished from contaminated aspergilli by their appearances on agar plates. The number (cfu/g) of contaminated aspergilli in the kecap koji from the environment decreased to 1/10 by using the starter culture. The kecap mash prepared with the kecap koji inoculated with the starter contained higher formol nitrogen and water-soluble nitrogen than those prepared with the koji without any starter. These results demonstrate that the use of the white-spored mutant as a starter not only contributes to the prevention of aflatoxin contamination but also improves the conventional kecap fermentation process.