

Fermentation Microorganisms Producing Flavors of *Kochujang*

Hae-Kyong Park and Jong-Kyu Kim*

Department of Applied Microbiology, Yeungnam University, Kyongsan, 712-749 Korea

Summary

Flavors of fermented food such as *Kochujang* change depending on the different raw materials, fermentation microorganisms, or fermenting conditions. *Kochujang* is made from various raw materials. The *Meju* used for making Sunchang *Kochujang*, Boeun *Kochujang*, and Sachun *Kochujang* is made from soybean and rice, soybean and barley, and soybean only, respectively. Fermented *mejus* that do not use a starter have many kinds of microorganisms, and microfloras of *mejus* are different from one another. In addition, the raw materials of *Kochujang*, such as salt, starch syrup, malt, and red pepper powder have various different microfloras. So, traditional *Kochujangs* are fermented by the many organisms. Temperature, one of the fermenting conditions, is different according to different areas and seasons etc.. *Kochujangs* having regular good flavors are made from standard raw materials, starters such as fermentation microorganisms, and with normal fermenting conditions such as temperature.

In this report, we review major fermentation microorganisms of *Kochujang*, *Kochujang* flavors, and the flavors produced by the organisms.

Major fermentation microorganisms of traditional *Kochujang* are bacteria such as *Bacillus subtilis* (aerobe) and *B. licheniformis* (facultative anaerobe), and alcohol fermentation yeasts such as *Saccharomyces cerevisiae* (osmotolerant yeast), *S. rouxii* (osmophilic yeast), or *S. dairensis*.

The bacteria and yeasts produce good flavors of *Kochujang*, taste components and aroma components of *Kochujang* during the fermentation of *Kochujang*.

The taste components of *Kochujang* produced by the microorganisms are free amino acids, free sugars, non-volatile organic acids, and volatile organic acids, and the aroma components are acids, alcohols, aldehydes, alkanes and alkenes, bezens, carbonyls, esters, furans, phenols, pyrazines, and other miscellaneous components.

Especially the bacteria produce acetic acid, propionic acid, butyric acid, 3-methyl butyric acid, and lactic acid of *Kochujang*.