

Session I Lecture 1

Metabolites and its functions of fermenting microorganisms

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Summary

The fermenting bacteria, including lactic acid bacteria (LAB), yeast and koji, have been used in food fermentation for a long time and have a potential for innovation in the food development because of its abilities to produce functional metabolites such as aromatic compounds, peptides and antioxidants. In addition, microbial components that confer a health benefit on the host and beneficial gut bacteria are getting attention as postbiotics. Therefore, we are looking for functional metabolites from fermented dairy products and microorganisms themselves. We found functional peptides from fermented dairy products using LAB, and also unique peptides were observed in koji-cheese ripened with the combination of LAB and Koji. On the other hands, carotenoid was found from LAB based on deciphering stress response mechanism. Concerning beneficial gut bacteria, we found novel stress resistance system in *Akkermansia muciniphila*, and LAB helping the growth of *A. muciniphila* were found referring to the resistance system. Our results suggest combination of ferment technologies, such as koji and cheese, can make attractive fermented foods and deciphering stress response system can develop postbiotics and improve our health in the future.