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**Activities of macerating enzymes are useful for selection of soy sauce koji**

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**Abstract**

During koji fermentation, macerating enzymes from koji molds (*Aspergillus oryzae* and *A. sojae*) soften cell wall of soybean and facilitate proteolytic enzymes to access their substrates, and hence high amount of proteinous materials are released from their matrix. In this study, wheat bran and soybean were used as substrate for seed koji cultivation and koji fermentation respectively. Enzyme activities in seed koji were far lower than that of koji. This was due to limited growth of koji molds in seed koji. However, correlation between these proteases and soluble protein release in koji was found. Moreover, pectinase also showed correlation with soluble protein release in koji. The results indicated that protease and pectinase activities were crucial for protein digestion. Lack of one of these enzymes led to low protein digestion ability of koji mold. Selection of koji starter culture would be more precise if pectinase as macerating enzyme was considered during the koji fermentation. Activities of these target enzymes in seed koji could be extrapolated to that of the koji, and were useful for screening and selection of koji starter culture.

Keywords: soy sauce; koji starter culture; *Aspergillus oryzae*; macerating enzyme; proteolytic activity

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