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## **INFLUENCE OF PH, TEMPERATURE AND SALT CONTENT ON THE ACTIVITIES OF PROTEASE AND AMYLASE DERIVED FROM SOYBEAN KOJI**

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**T**his research was undertaken to identify the fermentation conditions optimal for the koji production and to investigate the effects of pH, temperature and salt content on the enzymatic hydrolysis of koji protease and amylase. The experiments were carried out by inoculating the different ratios of soybean to wheat with the spores of *Aspergillus oryzae* using response surface methodology (RSM). The ratio of soybean to wheat were 2:1 and 1:1, corresponding to Chinese-type (BA1) and Japanese-type (BA2), respectively. The optimum fermentation time for both protease and amylase were found at 60 h for both BA1 and BA2. Both protease and amylase activities observed in BA1 were higher than those in BA2, it was because the steamed soybean was more easier to be hydrolyzed by the enzymes than the roasted wheat. The protease produced by *A. oryzae* was most active and stable in the pH range 7.0-7.7,

indicative of a neutral protease. The optimum temperature for protease activity was 52-55°C and the enzyme was stable at around 40°C. On the contrary, the acidic region pH 5, was preferred to amylase activity and stability. Additionally, the amylase which was most active at 60°C and stable at around 48°C, was more tolerant to heat and salt as compared to the protease.

### **Biography**

Cheng-Kuang Hsu has completed his PhD in Bio resource Engineering from Oregon State University, USA. He worked as Professor of Food Science at National Chiayi University, Taiwan. He published more than 50 papers in reputed journals and has been serving as Director of Analytical and Technical Service Center in National Chiayi University.

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