Characterization of Antimicrobial Activity of the Lysosomes Isolated from *Saccharomyces cerevisiae*

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The antimicrobial activity of lysosomes, a cell organelle, against a range of test microorganisms was examined in this study. The lysosomes isolated from Saccharomyces cerevisiae showed antimicrobial activity to Escherichia coli that positively correlated with the pH of the phosphate buffer as a dissolving solvent. The lysosomes from S. cerevisiae exhibited optimal activity at a concentration of 40% and at pH 4.0 of phosphate buffer. It also found that the lysosomes have antimicrobial activity against 7 different microorganisms including E. coli. In addition, S. cerevisiae were exposed by a treatment with H_2O_2 and lysosomes were isolated from H_2O_2 exposed S. cerevisiae. We found that fluorescent intensities of each isolated lysosomes were increased depending on the increment of treated H_2O_2 concentration, and the lysosomes from 20mM H_2O_2 treated S. cerevisiae showed higher antimicrobial activity than those from normal S. cerevisiae. Therefore, it suggests that lysosomes can be used as a antimicrobial agents isolated from S. cerevisiae. In addition, lysosomes when activated by H_2O_2 enhanced its antimicrobial activity.