Jarunee Chungsatapathchai 2008: Effect of Ascorbic Acid, Citric Acid and Oxygen Content on Browning of Fermented Bamboo Shoot during Storage. Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Assistant Professor Wannee Jirapakkul, Ph.D. 82 pages.

Browning in fermented bamboo shoot during storage is one of problems for consumers. In this study, the browning of fermented bamboo shoot with ascorbic acid, citric acid, low oxygen permeation rate packaging and commercial sample which added sulphite were compared with control sample. The results showed that ascorbic and citric acids in fermented bamboo shoot could prevent color changing better than control sample but less than comercial sample. The using of low oxygen permeation rate packaging could prevent color changing better than both of control and commercial samples. The result showed that oxygen content affected browning of fermented bamboo shoot. Therefore, the effect of oxygen content on browning and the relationships between browning, total phenolic, malondialdehyde, lignin and some phenolic compounds during storage of fermented bamboo shoot stored in 3 different packagings were studied. The packages which had oxygen permeation rate from low to high were vacuum packaging (V), polypropylene (PP) and low density polyethylene (LDPE), respectively. During storage, the color of fermented bamboo shoot in V packaging had the least change with the highest values of hue and white index (WI) and lowest value of delta-C. On the other hands, fermented bamboo shoot in PP had brown color after 4 weeks of storage. The phenolic content of fermented bamboo shoot in V and PP packagings were similar but higher than those stored in LDPE packaging. The malondialdehyde and lignin of fermented bamboo shoot stored in V packaging were lower than those stored in PP and LDPE packagings. Some phenolic compounds found in fermented bamboo shoot were catechol, caffeic acid, *p*-coumaric acid, ferrulic acid, quercetin and kaempferol. However, they were not correlated with brown color in fermented bamboo shoot in different oxygen permeation rate packagings.

Jarunee Chungsatapathchai — Student's signature

Wannee Jirapakkul — Thesis Advisor's signature

29 / May / 2008