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The Antibacterial and Antifungal Effects of Chitosan Added Cream Bread

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To investigate the effect of the chitosan on the growth of bacteria and fungi on the bread, 5% and 10% chitosan solution were added at 5% concentration to the cream bread and total bacteria and fungi counts, pathogenic *Staphylococcus aureus*, and *Salmonella spp.* were measured at everyday for 8 days. Therefore effect of the high temperature and moisture on the antibacterial and antifungal effects of the chitosan were also investigated at 30℃ in 70% humidity chamber. At the dry room temperature (25℃), all three groups of the control, 5% and 10% treated group did not show the growth of pathogenic *Staphylococcus aureus* and *Salmonella spp.* and the bacterial and fungal growth were completely inhibited at 10% chitosan treated group to the 5th days. Total bacterial cell counts at 5% and 10% treated group was inhibited to 96.3% (Day 4) and 92.7% (Day 5), respectively, compared to the control group. Total fungal cell counts at 5% and 10% treated group was inhibited to 81.3% (Day 7) and 98.8% (Day 7), respectively. At the high temperature and moisture environment (at 30℃ in 70% humidity chamber), all three groups did not show the growth of pathogenic *Staphylococcus aureus* and *Salmonella spp.*. At the 5% and 10% treated group total bacterial cell count was inhibited to 77.8% (Day 6) and 79.1% (Day 6) and total fungal cell count also was inhibited to 71% (Day 7) and 82.6% (Day 6), respectively. However, the antibacterial and antifungal effects of 5% and 10% chitosan were reduced compare to the dry room temperature (25℃).