

Research Title: Microbial Quality and Decontamination Techniques on Hairy Basil

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ABSTRACT

This study was conducted to investigate microbial contamination in hairy basil by random sampling two vegetable stalls from each of 9 markets(Huatakae, Ladkrabang Industrial Park, Ramkumheang, Klongtoey, Lanboon, Bangkapi, Minburi, Saphanmai and Ramintra Km 8) in Bangkok metropolitan area. The results were reported in a pair number according to the first and second stall. This study showed that total microbial count of these samples exceeded the microbial standard index. The yeast and molds contamination of hairy basil from fresh vegetable markets : Huatakae, Ladkrabang Industrial Park, Ramkumheang, Klongtoey, Lanboon, Bangkapi, Minburi, Saphanmai and Ramintra Km 8 was equal to $(1.18 \times 10^5, 1.03 \times 10^5)$, $(1.70 \times 10^5, 1.34 \times 10^5)$, $(6.00 \times 10^4, 2.27 \times 10^5)$, $(2.02 \times 10^4, 5.90 \times 10^5)$, $(5.95 \times 10^4, 1.30 \times 10^6)$, $(7.40 \times 10^5, 3.10 \times 10^3)$, $(2.54 \times 10^7, 2.91 \times 10^7)$, $(5.10 \times 10^4, 6.50 \times 10^3)$ and $(3.40 \times 10^4, 6.30 \times 10^3)$ CFU/g, respectively. The result of coliform detection identified as fecal coliform was $(9.30 \times 10^4, 2.10 \times 10^5)$, $(4.30 \times 10^4, 1.10 \times 10^6)$, $(2.40 \times 10^6, 9.30 \times 10^5)$, $(9.30 \times 10^5, 1.50 \times 10^6)$, $(4.30 \times 10^4, 1.10 \times 10^6)$, $(4.60 \times 10^5, 1.50 \times 10^6)$, $(1.10 \times 10^8, 2.40 \times 10^7)$, $(1.10 \times 10^6, 2.40 \times 10^6)$ and $(9.10 \times 10^3, 9.30 \times 10^4)$ MPN /g, respectively and it exceeded the microbial standard for food (500 MPN / g). In addition, *E. coli* bacteria contamination was found only in the hairy basil from Ladkrabang Industrial Park 1.

Analysis of microbial contamination in the hairy basil from the Hua Takhe market, Ladkrabang District, Bangkok was found that total microbial count (8.45-8.54 log CFU / g), psychotropic bacteria (8.18-8.22 log CFU / g), the amount of total coliforms and fecal coliform (5.45 to 5.75 and 6.27-6.44 log MPN/ g, respectively) and coliforms (7.75-7.93 logCFU/g) was exceeding the microbiological quality of container and exposed food standard by the Department of Medical Sciences Guidelines in 2553. No *E. coli* contamination was detected. The best method for microbial decontamination of total psychotropic bacteria, coliform, total coliforms, fecal coliform, *E. coli* and *S. aureus* was twice wash with piped water + wash with 1% of lactic acid for 5 seconds, following by twice wash with piped water + 10 ppm of ozonated water for 20

minutes. The 1% concentration of lactic acid has affected on the hairy basil appearance, causing leaf burn and accerelating vegetable rot as it should be further studied for appropriate concentrations in the vegetable wash.

Keywords: hairy basil, microbial decontamination, fecal coliform, *E. coli*, *S. aureus*, lactic acid, aqueous ozone