

ABSTRACT

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Study Program : Food Science

Title : The Immunostimulatory Effect of Oncom Water Extract (OWE) on The Production of Interleukin (IL)-6 and Tumor Necrosis Factor (TNF)- α by Macrophage Cells.

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Oncom is a traditional fermented food originated from West Java, Indonesia. Oncom extract has been previously reported to show antioxidant, anticancer, and antimutagenicity activities. However, the potential benefits of oncom on the immune system has not been reported. This study investigated the immunostimulatory effect of oncom water extract (OWE) on mouse macrophage-like RAW264.7 cells and mouse primary peritoneal macrophages (P-Mac). Production of cytokines was examined by ELISA while relative gene expression was evaluated by real-time RT-qPCR. OWE stimulated the production of IL-6 and TNF- α by enhancing their gene expression in both RAW264.7 cells and P-Mac. In addition, OWE stimulated the phagocytosis activity of RAW264.7 cells. Proteinase K treatment of OWE did not affect the immunostimulatory activity. However, the activity of OWE was slightly reduced by heat treatment at 100°C for 30 minutes. The nature of active substance that attributes to the immunostimulatory effect is a non-protein, heat-stable substance. Further investigations should be conducted to identify the active substance. Taken together, this study indicated that oncom can be used as a functional food with immunostimulatory potentials.

Keywords: oncom, macrophages, cytokines, phagocytosis, immunostimulation