Immunostimulatory effect of dried coriander seed extract on mouse macrophage-like RAW264.7 cells and mouse peritoneal macrophages.

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Dried coriander (Coriandrum sativum L.) seed is one of the popular spices around the world. Coriander seed is used in cooking curry and imparts excellent flavor and taste. Many studies have been conducted on the health functions of coriander seed, however, it is not clear the effect of coriander seed on immune system. Macrophages play an important role in the innate and adaptive immunity, with macrophage activation leads to enhance the immune system. First, we evaluated the immunostimulatory effect of some spice extracts. After that, we herein focused on that effect of coriander seed extract (CSE) on mouse macrophage-like RAW264.7 cells and mouse primary peritoneal macrophages (P-Mac). Dried coriander seed powder was suspended in 10 mM sodium phosphate buffer (pH 7.4) and gently stirred for 20 h at 4°C. The suspension was centrifuged at 10,000 × g at 4°C for 30 min, and the supernatant was collected and sterilized by filtration. RAW264.7 cells or P-Mac were incubated in the medium containing CSE for 6 h to elevate the effect of CSE on the production and mRNA expression levels of cytokines. As a result, CSE significantly stimulated the production of tumor necrosis factor (TNF)-α and interleukin (IL)-6 by both RAW264.7 cells and P-Mac through increase in levels of gene expression. In addition, phagocytosis activity of RAW264.7 cells was also facilitated by CSE. CSE also up-regulated NO production by activation of inducible nitric oxide synthase (iNOS) gene expression. In conclusion, these data indicated that coriander seed water extract might contribute activation of host defense against pathogens by the activation of the innate immunity.