Extended Abstract
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Simultaneous integration of influenza vaccine and chitosan nanoparticles within CpG nucleotides oligodesoxi and check its efficiency in reducing the dose of influenza vaccine in the mouse model

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Abstract

New formulations are needed to improve the efficacy of influenza vaccines. Lack of efficient delivery systems for transporting antigenic molecules to the cytosol of antigen presenting cells presents a major obstacle for antigen uptake by immune cells. To this end, influenza Whole Inactivated Virus (WIV) vaccines were formulated with chitosan nanoparticles and CpG oligonucleotide as a biodegradable delivery system and a Th1-specific adjuvant, respectively. Inactivated Influenza virus vaccine with CpG and Chitosan was injected intradermally to female Balb/C mice. Injections were single dose in high and a reduced valium. 30 days after injection, cell proliferation assay (MTT), IFN-gamma and IL-4 Elispot assays were carried out. Sera samples were collected 21 days after immunization to measure IgG1 and IgG2a levels. In addition, the mice challenged with mouse adopted virus, were monitored for weight loss. The results of analyzing the stimulation of cellular and humoral immune systems and weighting the mice show a significant stimulation of both humoral and cellular immunities; also, weight gain and a decrease in mortality in the mice receiving both dosages of inactivated influenza virus vaccines with CpG and Chitosan coating were observed.
This finding demonstrated that CpGchitosan low-dose vaccine was less costly than high-dose and
helps in production of more vaccine despite the limited production required virus. Based on our results, it can be concluded that formulation of inactivated Influenza virus with CpG and its delivery by Chitosan as low-dose in return of high-dose with the same results as balanced between cellular and humeral immune responses can make enormous saving in manufacturing vaccine.

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Five different fungi were isolated from ceramics industry muds (CM) and ceramics industry wastes (CW) on inoculated agar plates containing 0.5 mM of lead [Pb(NO3)2], copper [CuSO4.5H2O] and silver [AgNO3]. Different concentrations (10 mg/l, 5 mg/l, 2.5 mg /l, 2 mg/l, 1.5 mg/l, 1 mg/l, 0.5 mg/l and 0.0125 mg/l) of lead resistance was investigated. Point planting were made with nutrient agar. After one-week incubation at 27°C, the zone diameter of the fungal colony was measured and compared with the control group and percent inhibition was calculated. All fungal isolates (CW1k, CW2k, CW3k, CM1k, CM2k) were found to be resistant to the three metals tested. Increased lead concentration was found to increase the inhibition of fungal growth. Despite this, all the lead concentrations tested in the isolate showed improvement.

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