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Effect of neem and mannoproteins of *Candida albicans* on some immunologic parameters on mice vaccinated with Br. Rev-1 vaccine

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Abstract

The study was planned with the aims to evaluate the immunomodulator potentials of neem seed extracts (aqueous and ethanolic) and *C. albicans* cell wall mannoproteins in mice vaccinated with *Brucella* Rev-1 vaccine in relation to Prednisolone treatment. The study was conducted on two main groups(160 mice for each group), Each group was divided into eight subgroups 20 mice each, subgroups treated as follow I: treated with distilled water only, I: *Brucella* Rev-1 vaccine only,; III treated with mannoproteins only, IV: treated with aqueous extract only V: treated with ethanolic extract only respectively, last three groups VI,VII and VIII: treated with mannoproteins, aqueous and ethanolic extract, respectively, then they were vaccinated with *Brucella* Rev-1. The second eight sub groups were treated as in experiment number one and injected subcutaneously (0.2 ml) with the immunosuppressed drug prednisolone (5 mg/kg) 5 days prior to the treatment regimens to be effective in mediating immune suppression in mice. All these treatments were carried out on day 1 and then vaccinated with *Brucella* Rev-1 vaccine on day 4 in all mice .The mice were scarified and tested as follows , on day 10 after vaccination for nitro blue tetrazolium index(NTB), on day 14 for (delayed-type hypersensitivity reaction(DTH) and lymphocyte transformation test(LTT).

The results demonstrated clear immunomodulator effects, the NBT index was significantly increased in immunomodulator-treated and vaccinated mice in comparison with control negative (I) and (II, III, IV and V) groups at the level ($P \leq 0.05$ and $P \leq 0.01$). The mitotic index of lymphocytes cells showed significant increase ($P \leq 0.05$ and $P \leq 0.01$) percentage in immunomodulator-treated and -vaccinated mice in comparison with negative and positive control groups. In DTH, an increased index was significantly increased in immunomodulator-treated and -vaccinated mice in comparison with negative and positive groups, and a best result was observed in group IV, 24 hours post-brucelline injection, and in general the response after 24 hours was better than 48 hours. In this study immunomodulation could be concluded that neem seed extracts (aqueous and ethanol) and mannoproteins isolated from *Candida albicans* cell wall are important immunomodulators in the development of immune response against *Brucella abortus*, especially if they are employed in the vaccine strategy. Against such important pathogen. From the present results, it is possible to conclude that the neem seed extracts (aqueous and ethanolic) and the cell wall mannoproteins of *C. albicans* might be a potential immune adjuvant for inducing active immunity against *brucella*, and may act as Immunopotentiators through increasing microsomal proteins. These proteins have a binding activity to antigens, and such binding helps in extending the half-life of the antigen by a gradual release of it over a long period.