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| University of Baghdad |
| College of veterinary medicine/University of baghdad | College Name |
| Microbiology | Department |
| Tareq Jafar Faal Al-Jindeel | Full Name as written in Passport |
| Tareq J85@yahoo.comm. | e-mail |
| **Professor**  | **Assistant Professor**  |  **Lecturer** |  **Assistant Lecturer**  | Career  |
| The use of Neem (Azadirachta indica) as immunomodulators in brucella vaccine –S-19 and RB51in mice | Research Title  |
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| **The study of the immunomodulatoty effect of ethanolic Neem (*Azadirachta indica*) seed extract on the immune response of mice vaccinated with *Brucella* S-19 and RB-51 vaccine was investigated.** **This experiment was carried out on mice of the farm-National centre of Drug control & Research from 1-9-2010 to 1-12-2010. The study was included six groups,( 40 mice each )**I st: **treated with distilled water,** II nd**: treated with ethanolic Neem seed extract only.** III **rd: treated with the *Brucella* S-19 vaccine, ,** IV th**: treated with the Brucella RB51vaccine only.** V th: treated **with ethanolic Neem seed extract and brucella-S-19 strain vaccine,** VI **the : treated with ethanolic Neem seed extract and brucella-RB51 strain vaccine. The above treatments were carried out on the day 1, and then the mice were sacrificed on the day 8 for (serum IFN-γ level) by Eliza assay, on the day I4 (delayed-type hypersensitivity reaction) and day 21 for (anti-*Brucella* antibody titer)by indirect Immunoflourescent . The doses of Neem seed extracts was equalize to 10% of the LD50 38I mg/Kg, which were given subcutaneously. The results have been demonstrated clear immunomodulatory effects (improvement of non-specific, cellular and humoral immunity) of the tested mice vaccinated with *Brucella* S-19 treated with ethanolic Neem seed extract, and non-specific, and cellular immunity in mice vaccinated with Brucella S-RB51 treated with ethanolic Neem seed. The interferon-γ serum level showed a significant increased (P≤0.05, ≤0.01) in Neem-treated and -vaccinated mice in comparison with negative and positive groups, and group VI showed a highest increase. In delayed-type hypersensitivity reaction, an increased skin test index was significantly increased (P≤0.05, ≤0.01) in Neem-treated and -vaccinated mice in comparison with negative and positive groups, and the best results was observed in group VI after 24 hr post-brucelline injection, and in general the response after 24 hours was better than 48 hours. The anti-*Brucella* antibodies also showed a significant increased (P≤0.05)titer in vaccinated mice with Brucella S-19 treated in groups 111 and V as comparison with others groups. A Conclusion** came out from these results indicated in our study reveals that ethanolic neem seed extract of neem is important in the development of immune response against both vaccines **brucella –S-19 and RB5**in mice. | Abstract |