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In vivo effects of propolis extract on acute and latent *T. gondii* viability

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Background: Propolis is a honey bee product has a multifunctional substances used by bees in the construction and maintenance of their hives, being used as human dietary supplement, and gained popularity in alternative medicine due to its anti-microbial activity without draw back or side effects.

Aim: The present study aimed to qualify the anti-protozoal activities of propolis extracts *in vivo* trials against acute and latent stages of Toxoplasma gondii.

Methods: A total of two hundred and eighty Swiss mice were used as a long as the term of the study. In vivo trials were conducts after and according to feed back of efficient significant dilutions reference to *in vitro* trials. Wherever, the infected acute and chronic mice groups were inoculated by 3×103 of either RH or ME49 strains respectively, followed by oral or intra-peritoneal treatment by serial dilution of propolis extract at; 100%, 50%, 25%, and 1%. Mice was inoculated by 1.5mg propolis extract for consequence 3 days course beginning at (60HPI) or 7days course beginning at (45HDPI) corresponding to the acute or chronic groups.

Results: The results validate *in vitro* diluted propolis extract at 5, 6, 7 and 8% were effective to enhance preserving values, Where 7% symbolize maximum optimal reactive value, successfully increase the percent of persisting viable tachyzoites longer time up to (174.5 HPE) and (240 HPE), which exceeding over the normal control saline (100 HPE) and (140 HPE) at the same chilling temperature at 4°C and corresponding to LD50 & LD100 of *in vitro* viability. The higher concentrations of propolis extract the higher destructive and degenerative power agenist *in vitro* viable tachyzoites, the faster time was recorded with 100, 50, 25 and 10%, through maximum values with 100% at less than 1.8 HPE,estimated referance to the normal control saline (100 HPE) at chilling temperature (4°C) , corresponding to LD50 and at 4 HPE corresponding to LD100. Concerning *in vivo* trials; the average percant of dead and survive acute infected mice groups showed significance higher survived and lower dead with intra-peritoneal treated groups than the oral treated ons, with the most optimal reactive value of propolis dilution was 50% in both treated groups, with maxmium servived mice percent up to 60 and 15 corosponding to intra-peritoneal and oral treatment. the lowist APL was corosponding to intra-peritoneal treatment 14.2 and 23.5 APL/10mg/ in both chronic and acute groups respectivily and crosponding to brain and visceral tissue. APL was recording lowering values in oral-chronic groups than in oral-acute ones. Also, APL was recording lowering values in intra-peritoneal-chronic groups than in intra-peritoneal acute ones.The 50% dilution of propolis extract recording optimal reactive value higher than 100% dilution,creating unlogic curve.

Conclusions: From offermentioned results it could concoluded that the significance lowering of APL with all varied propolis dilution corospondng to *in vivo* trials of all acute and chronic treated groups even with varietys of dose, rout, long or short treatment course, indicating siginficance use of higher concentration of propolis in treatment acute or latent human toxoplasmosis.

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