ABSTRACT

Priscilla Mercy (1132011003)

THE EFFECTS OF *Pediococcus pentosaceus* D32 PROBIOTIC AS IMMUNOMODULATOR IN INDUCING IMMUNE RESPONSE OF ANTIBODY LEVEL, TNF-ALFA CYTOKINE AND PHAGOCYTOSIS IN HOUSE MICE BALB/C WITH *Plasmodium berghei* ANKA INFECTION

( xiv+ 57 pages: 4 figures; 1 tables; 8 appendixes)

Malaria is a disease caused by *Plasmodium* transmitted through a vector called *Anopheles* mosquito. Until now research to create an effective vaccine against malaria has not yielded result. Moreover problem of resistance in the mosquito and the *Plasmodium* parasite worsen the situation. Probiotic is a bacteria that when administered orally can bring beneficial properties to the host. Further, it is thought to act as an immunomodulator to combat malaria infection. The purpose of this study was to evaluate the potential of live cultures bacteria *Pediococcus pentosaceus* D32 collection of UPH in modulating the host immune system Balb/c mice to fight infection by *Plasmodium berghei*. The research utilized 65 male Balb/c mice 5 weeks old, which were divided into 5 groups: control with no treatment, placebo (PBS)+*P. berghei*, *P. pentosaceus* D32 + *P. berghei*, *L. fermentum* E5 + *P. berghei* (positive control), and *P. berghei* only. Spleen and blood serum harvested in H-0, H + 7, H + 14 and H + 21 after the injection of *P. berghei* were analyzed through phagocytosis test, hemagglutination test and measurement of the levels of TNF-alpha. Probiotic cultures administered orally for 14 days, before injected with 4 million by *Plasmodium berghei* ANKA. E5Pb & D32Pb groups have the highest percentage of inhibition in phagocytosis test on H+21 (74.71% & 74.91%). The highest antibody titer was found in group D32Pb at H+14 (log 2 titre 18.56). Interestingly, the highest concentrations of TNF-alpha was observed in H+7 in *P.berghei* control group (log 1.16) and the lowest in D32Pb group (0.52 log).


Keywords: *Plasmodium berghei*, probiotic, TNF-alpha, *Pediococcus pentosaceus*, hemagglutination