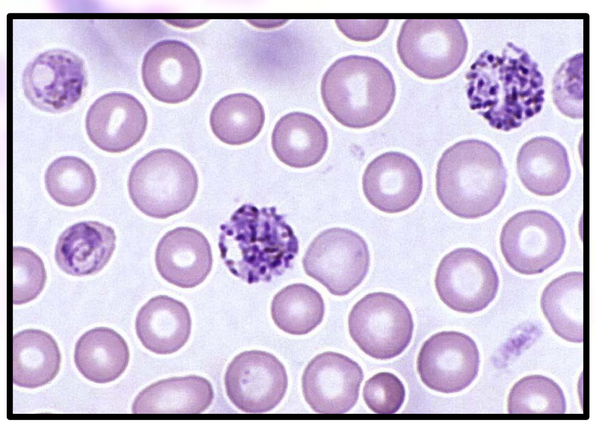
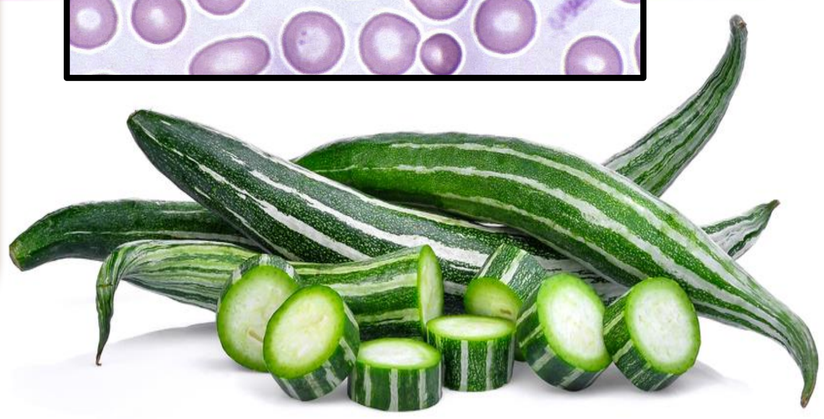
Trichosanthes cucumerina AS A PROMISING NON-TOXIC ANTIMALARIAL AGENT AGAINST *Plasmodium berghei* NK65 IN ANIMAL MODEL





Muhamad Aiman Abd Jalil and Mohd Shukri Baba

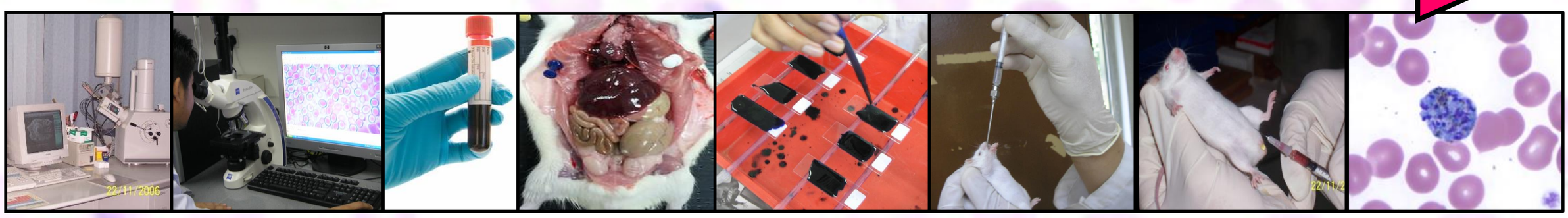
Department of Biomedical Science, Kulliyyah of Allied Health Sciences, International Islamic University, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, 25200 Kuantan, Pahang, Malaysia.

INTRODUCTION

Malarial etiological agents were reported to be resistant against nearly all current antimalarial drugs. This study demonstrated how the manipulation of natural planted vegetable, *Trichosanthes cucumerina* (snake gourd) promisingly can solve manifestation of malaria in animal model. Four days suppression test (4DST) in *Plasmodium berghei* NK65-infected male ICR strain mice (6-8 weeks old, 25-30 g) showed that >78 % of the inhibition rate by *T. cucumerina*-d$H_2$0 extract at 10 mg/kg bw and had survived for more than 7 months post-infection. Biochemical tests were significantly situated in the normal ranged and histologically, no abnormalities found on the selected vital organs. This study evidenced that *T. cucumerina* has a promising antimalarial activity and could be manipulated for the welfare of both animal and human, as well as for environmental sustainability.

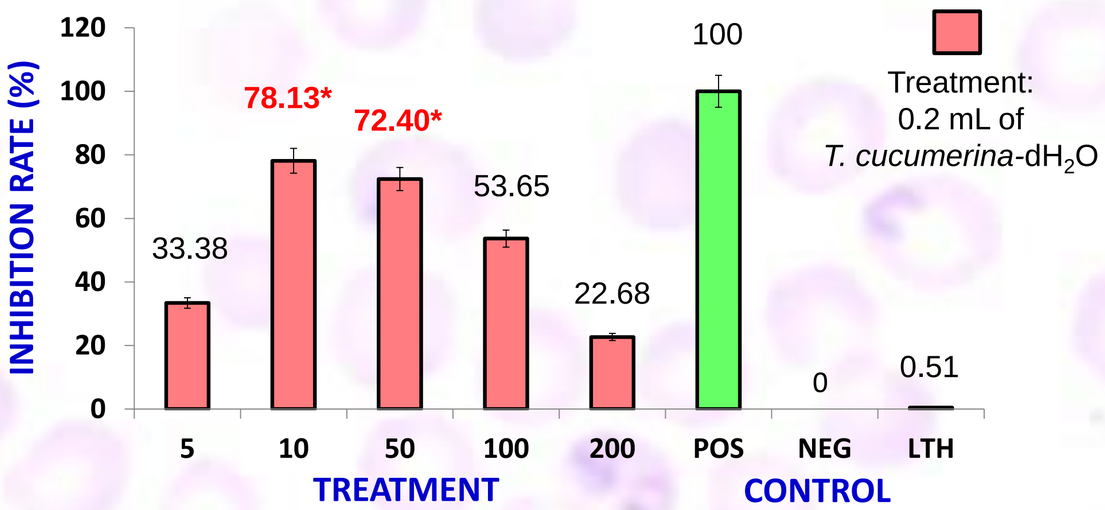
METHODOLOGY

Trichosanthes cucumerina

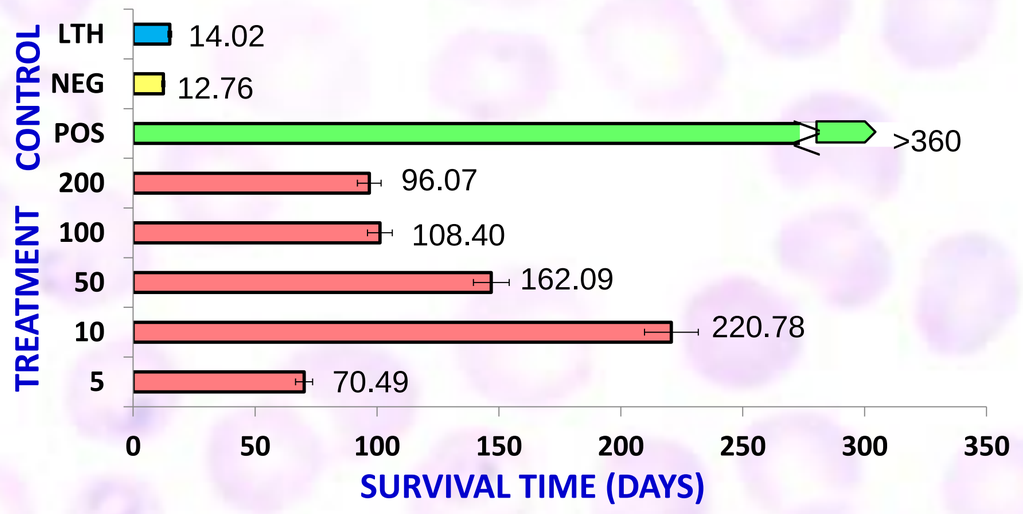


RESULTS

Inhibition Rate (%) of the mice treated with *T. cucumerina*-dH_2O extract on D4 post-infection at five different concentration (µg/kg bw)



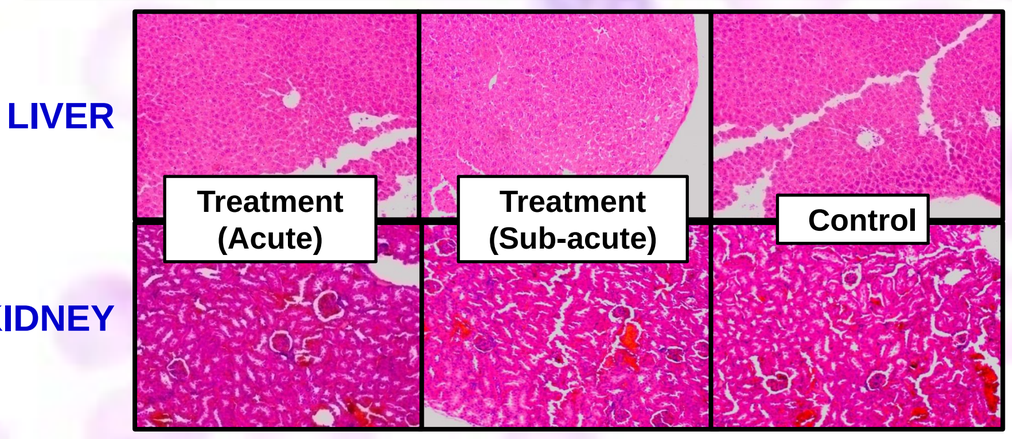
Survival Time (Days) of the mice treated with *T. cucumerina*-dH_2O extract on D4 post-infection at five different concentration (µg/kg bw)



Biochemical test values for toxicity assessment

Test	TA	TB	TC	TD	CN	CL	NR	Unit
ALT	41.81 ± 2.14	45.20 ± 1.13	67.57 ± 2.91	90.03 ± 2.02	41.03 ± 3.91	44.83 ± 1.11	40 – 93	IU/L
AST	133.13 ± 2.04	125.93 ± 2.12	167.11 ± 2.27	187.01 ± 2.09	111.62 ± 1.19	134.43 ± 4.01	92 – 206	IU/L
ALP	62.76 ± 2.33	59.4 ± 2.97	69.2 ± 2.90	68.03 ± 2.10	61.46 ± 2.46	58.32 ± 2.97	54 – 115	IU/L
STP	6.12 ± 2.32	7.21 ± 3.81	7.93 ± 2.01	8.83 ± 3.90	6.40 ± 1.01	6.80 ± 3.06	5.8 – 9.5	g/dL

Liver and kidney histopathology for toxicity assessment



DISCUSSIONS

- The action of Pheniprazine molecule in *T. cucumerina* against –thiol group of parasite enzymes which is crucial for parasite proliferation (Devi, 2017)
- Bivittoside in *T. cucumerina* inhibited enzymes for stability of the redox reaction in protozoan cells (alcohol dehydrogenase & cysteine proteinase) (Sandhya, 2010)
- At 10 and 50 mg/kg bw, it could be the best concentration for *T. cucumerina* to kill and inhibit the growth of *Plasmodium* spp in infected host

CONCLUSION

T. cucumerina has a promising antimalarial activity and could be manipulated for the welfare of both animal and human, as well as for environmental sustainability. Future works is required to determine the effectiveness of antimalarial properties of the plant.

REFERENCES

- Devi, N. (2017). Medicinal Values of *Trichosanthes cucumerina L*. (Snake Gourd) - A Review. *British Journal of Pharmaceutical Research*, 16(5), 1-10
- Sandhya S.V. (2010). An Updated Review On *Tricosanthes cucumerina*. 2:56-58
- Wykes N. (2009) What Have We Learnt From Mouse Models For The Study Of Malaria. *European Journal of Immunology* 39(8):3-7