APPENDIX A

PHOTOGRAPHS OF THE FIELD STUDY

i. The rural study area (Padang Tengku and Benta): almost all the houses of the two rural areas are made of cement blocks and have toilets and water supply, modern governmental services are available and the roads are paved.

A view for the village in rural Benta, Lipis district, Pahang.

A view for the village in rural Padang Tengku, Lipis district, Pahang.

The road connects between the rural villages

Almost all the houses are made of cement blocks

ii. The Forest-Aboriginal study area (Pos Betau): almost all the aboriginal houses are made of bamboo and wood, have no toilets, primitive life and the roads are unpaved, narrow and dangerous.

The road that connect between aboriginal villages

All houses are made of bamboo

With two aboriginal people at Pos Betau

Preparing the launch for the family

A side view for the village

No proper sanitation (traditional toilets)

iii. Activities in collection of data

Meeting with malaria centre unit officer, Lipis district

Explanation of the objective of the study

House-to-house survey

Meeting with the households

Filling up the questionnaire

Household female with malaria history

Meeting with outpatient clinic officer at rural Benta.

Collecting the questionnaire at rural Padang Tengku outpatient clinic.

Meeting with traditional healers and religious people at the rural and aboriginal areas

Collecting and deposit of the plants species at the Herbarium of the University of Malaya

APPENDIX B

SEMI-STRUCTURED QUESTIONNAIRE

i. The framework of the topics of KAP and ethnobotanical survey; open-ended questions

Sociological data

Name Sex Age

Ethnic group Religion Occupation

Education

Knowledge of malaria

Symptoms are

Transmission mode

Malaria severity

Characteristics of malaria crisis (symptoms)

/Treatment seeking behaviour

Treatment used

Malaria control

Use of plants remedies, preparation, application and dosage of the remedies

Specific effects and side effects of the plant remedies

ii. Data sheets

Socio-demographic								
Race	Relgion	House type	area	Empl. status	Education	Sex	Age	Code

Malaria knowledge I							
Cause of malaria (transmission)						What is malaria	Code
Others	Don't know	Human to human	From forest	Stag. Water	M. Bite		

MALARIA KNOWLEDGE II									
Symptom of malaria									
Others	Don't know	Loss of appetite	Red rash	Abdominal pain	vomiting	Chills & rigors	headache	fever	Code

MALARIA ATTITUDES (Severity of Malaria)									Code
							serious	not serious	

MALARIA PRACTICES I						
Treatment seeking						
Medicinal plant details, Local Name, Preparation, , Application, Effectiveness	clinic, 48-72 H	witch	M. plant	Self-medic.	clinic, 24 H	Code

MALARIA PRACTICES II									
Prevention of malaria									
Others	Don't know	removing breeding areas	making smoke	cleaning environment	creams	prophylactic	insecticide	m.b.net	Code

APPENDIX C

PHOTOGRAPHS OF EXTRACTION OF THE PLANTS

Processing for plant extraction

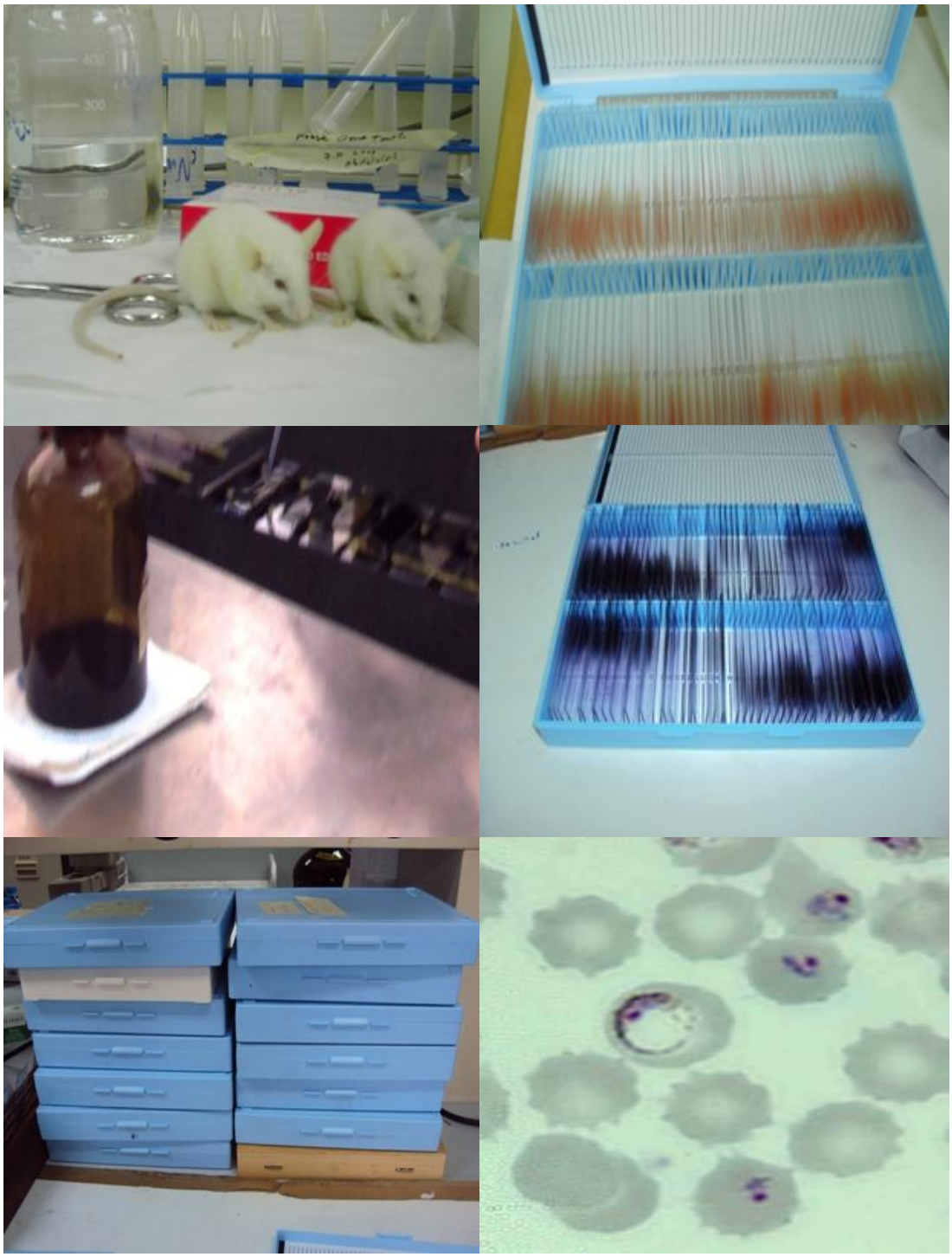
Preparing the doses of the plants extracts

APPENDIX D

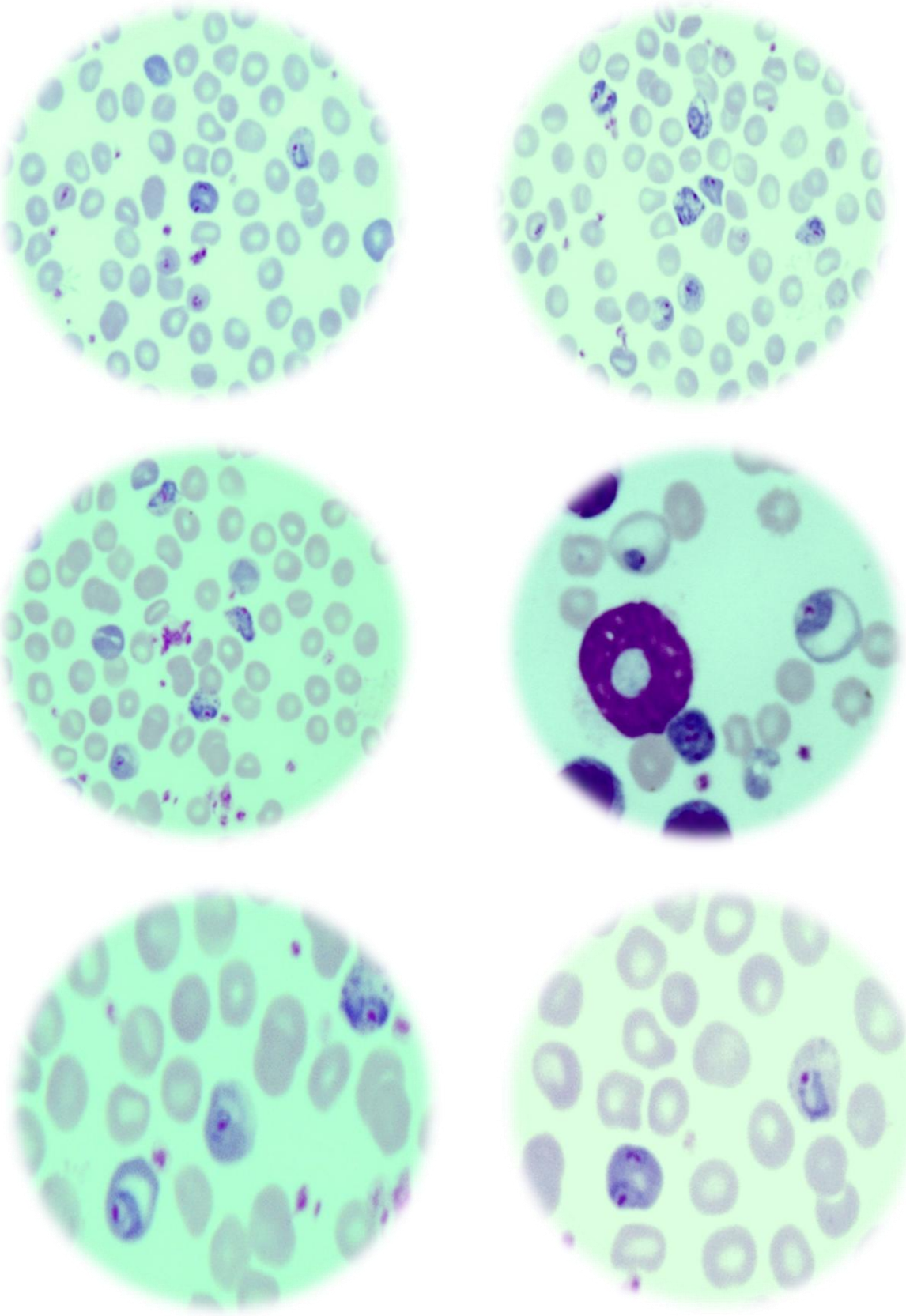
PHOTOGRAPHS OF MICE, TREATMENT AND EVALUATION

i. Photographs of mice, treatment and evaluation

Processing for mice infection and treatment during the anti-malarial assays



Processing for evaluation of anti-malarial suppression activity

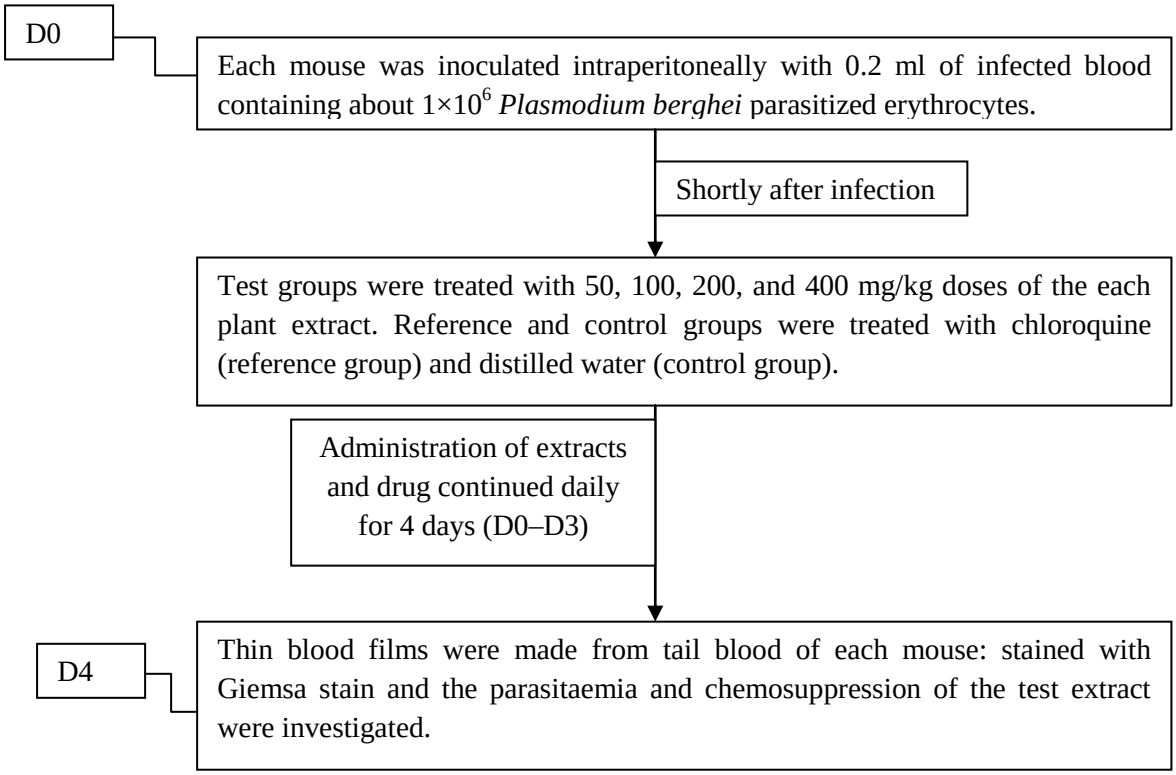


The Giemsa stained slides showed the mice's red blood cells infected with *Plasmodium berghei*, the photos adjusted and refined with Microsoft Office Picture Manager Software.

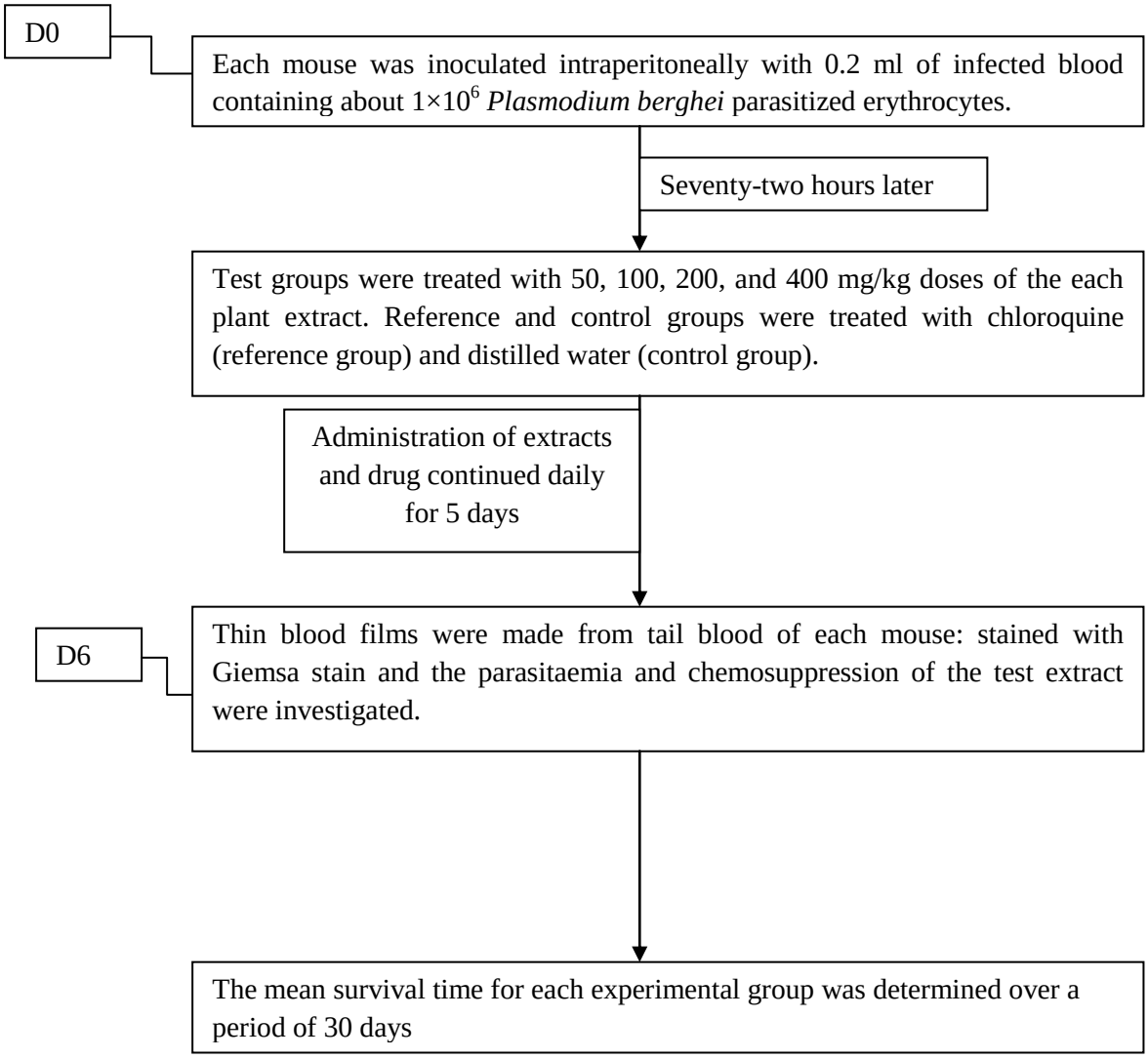
APPENDIX E

IN VIVO ANTI-MALARIAL TESTS PROTOCOLS

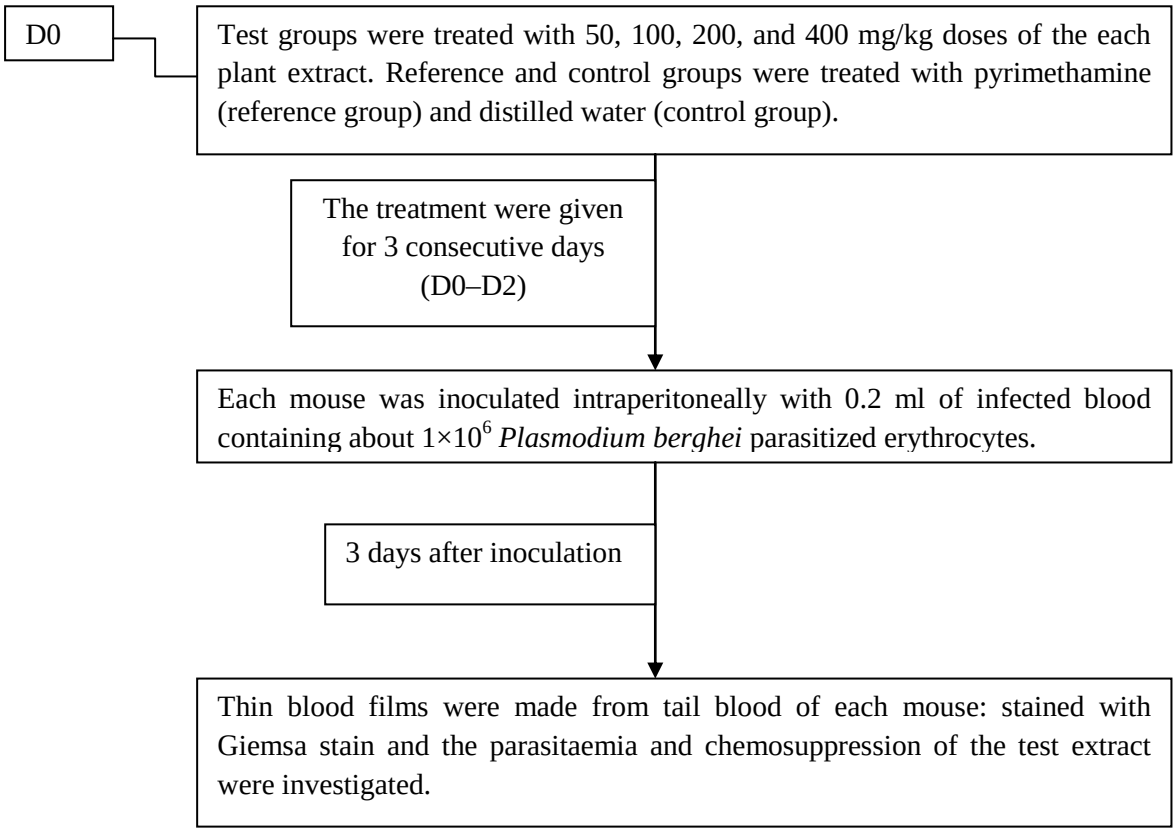
i. Early infection (4-day suppressive test)



ii. Established infection (curative activity)



iii. Residual infection (prophylactic activity)

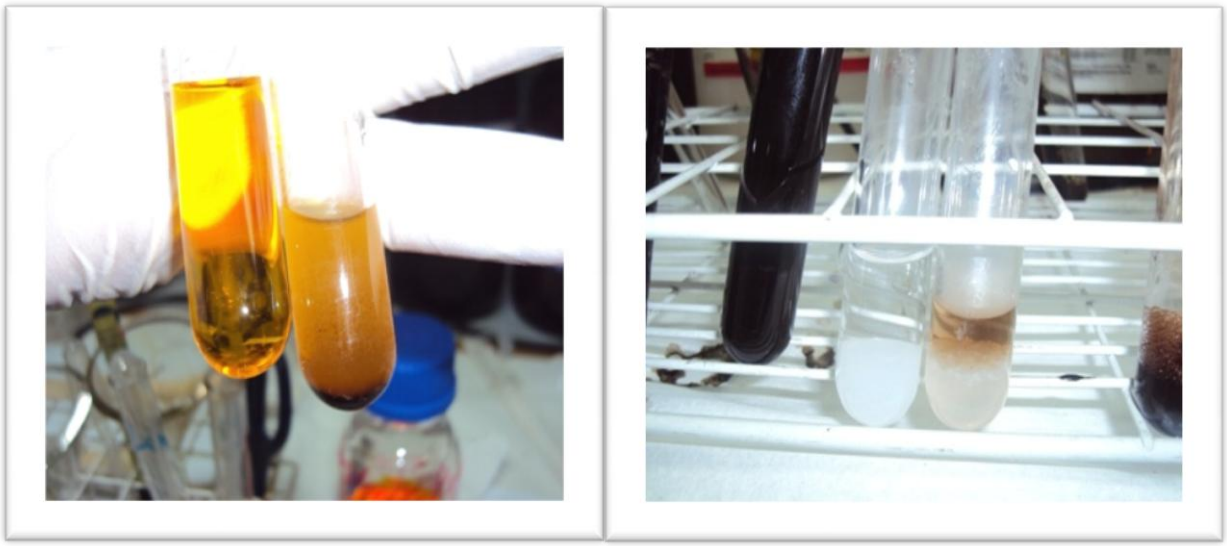


APPENDIX F

PHOTOS OF ANTIOXIDANT AND PHYTOCHEMICAL SCREENING

Samples	1	2	3	mean
L 25	43.15	28.52	41.98	37.88
L 12.5	35.57	16.39	36.05	29.34
L 6.25	17.20	1.31	28.40	15.64
L 3.125	-1.75	2.95	24.69	8.63
L 1.56	9.91	-1.64	21.98	10.08
C 25	5.83	-7.54	18.27	5.52
C 12.5	4.37	-8.52	9.88	1.91
C 6.25	8.75	-1.97	16.30	7.69
C 3.125	7.87	-4.92	21.48	8.15
C 1.56	9.62	-0.33	18.77	9.35
K 25	39.07	32.79	50.12	40.66
K12.5	23.62	10.16	35.31	23.03
K 6.25	19.53	3.93	28.15	17.21
K 3.125	6.71	-4.26	23.95	8.80
K 1.56	5.54	-6.56	21.48	6.82
S 25	79.88	78.69	83.46	80.68
S 12.5	82.51	80.00	85.19	82.56
S 6.25	61.52	49.84	64.44	58.60
S 3.125	37.61	28.85	48.15	38.20
S 1.56	25.95	12.79	35.31	24.68
AA 25	73.47	68.20	76.54	72.74
AA12.5	72.59	67.87	76.30	72.25
AA 6.25	71.43	68.52	75.06	71.67
AA 3.125	15.16	-5.57	23.21	10.93
AA 1.56	9.33	-2.62	20.99	9.23
GA 25	73.18	70.16	78.02	73.79
GA 12.5	72.89	69.18	77.04	73.03
GA 6.25	71.43	65.90	74.81	70.72
GA 3.125	70.26	65.25	74.32	69.94
GA 1.56	49.85	30.82	50.86	43.85

DPPH scavenging activity %

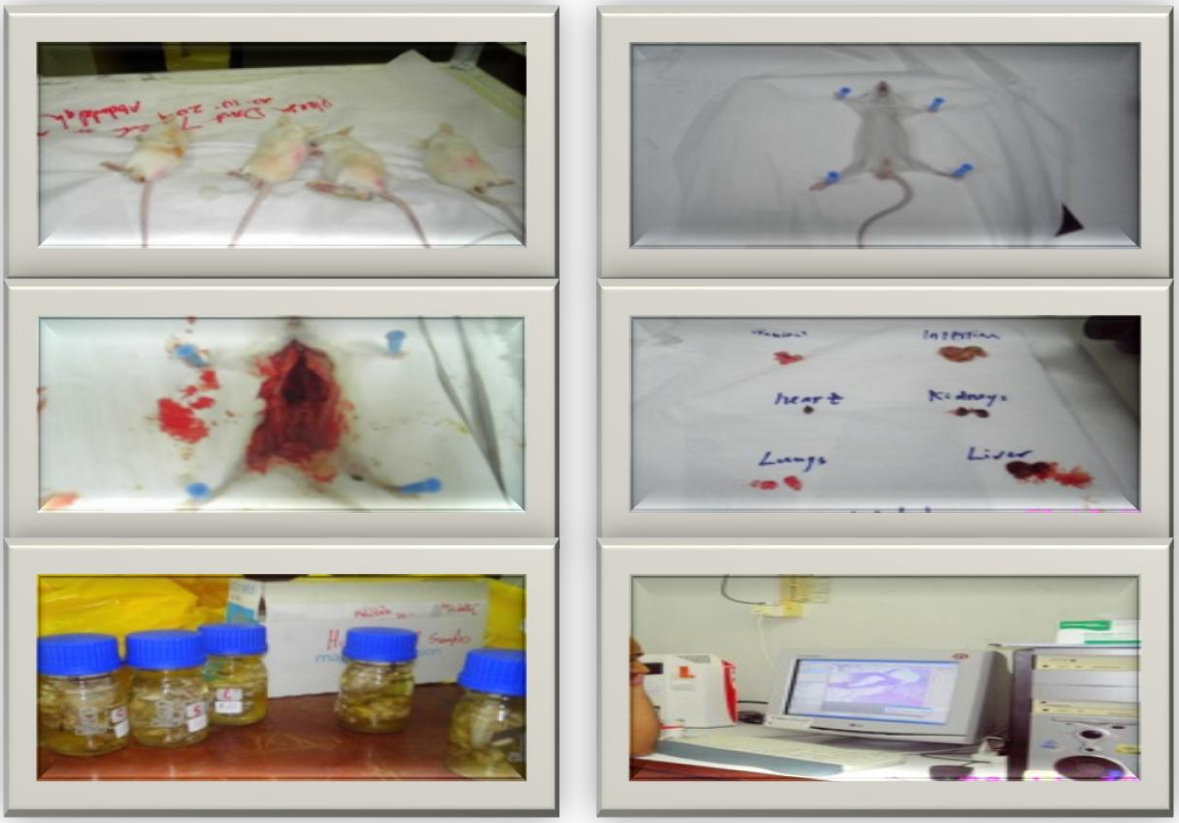


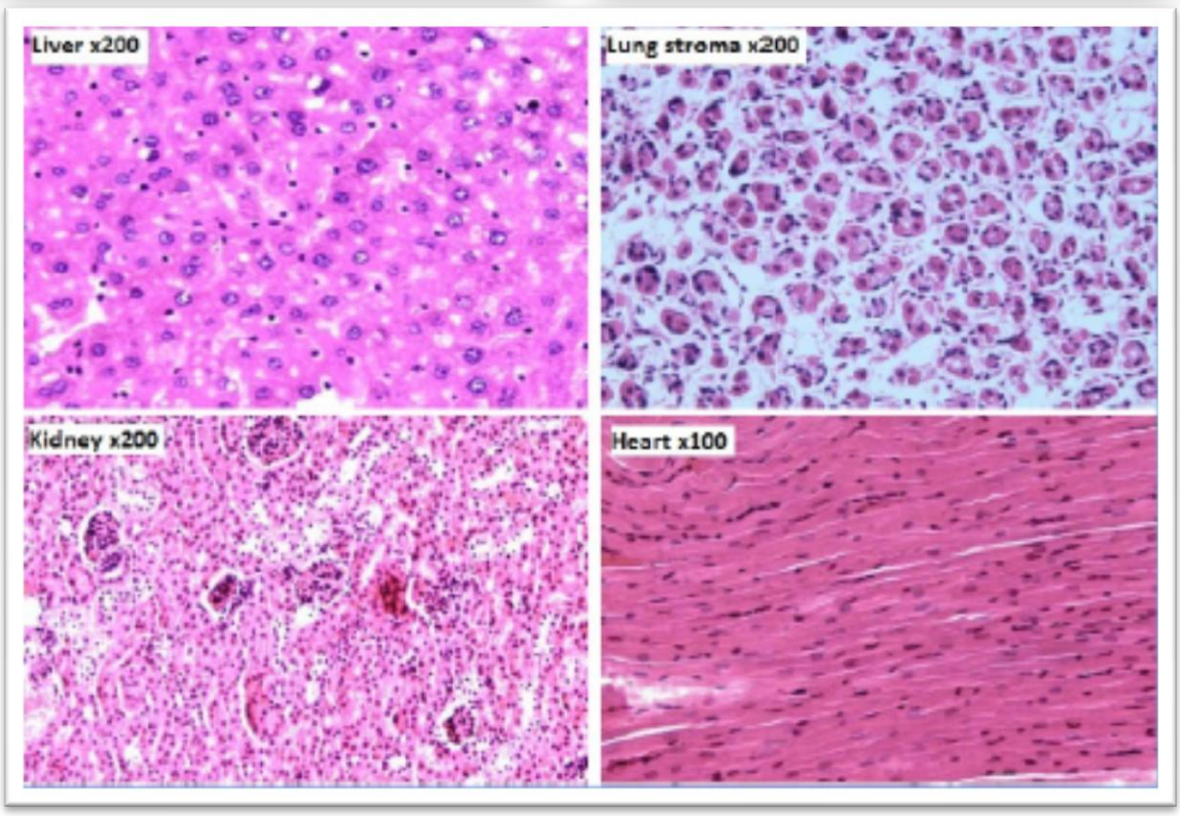
+ve Phytochemicals results

APPENDIX G

FURTHER RELATED WORK ON THE PLANTS

Histopathological study on the treated mice with 5000 mg/kg of the plant extract dose





APPENDIX H

PUBLICATIONS AND PRESENTATIONS

A. Publication directly arising from the work described in this thesis

i. International Journals (*ISI*, Tier one and two *Cited Publication*)

1. **Abdulelah H Al-Adhroey**, Zurainee M Nor, Hesham M Al-Mekhlafi & Rohela Mahmud. (2010). Opportunities and obstacles to the elimination of malaria from Peninsular Malaysia: Knowledge, attitude and practices on malaria among aboriginal and rural communities. *Malaria Journal*, *9*, 137.

2. **Abdulelah H Al-Adhroey**, Zurainee M Nor, Hesham M Al-Mekhlafi & Rohela Mahmud. (2010). Ethnobotanical survey on some Malaysian anti-malarial plants. *Journal of Ethnopharmacology*, *132*, 362-364.

3. **Abdulelah H Al-Adhroey**, Zurainee M Nor, Hesham M Al-Mekhlafi & Rohela Mahmud. (2010). Median Lethal Dose, Antimalarial Activity, Phytochemical Screening and Radical Scavenging of Methanolic *Languas galanga* Rhizome Extract. *Molecules*, *15*, 8366-8376.

4. **Abdulelah H Al-Adhroey**, Zurainee M Nor, Hesham M Al-Mekhlafi, Adel A. Amran & Rohela Mahmud. (2011). Antimalarial Activity of Methanolic Leaf Extract of *Piper betle* L. *Molecules*, *16*, 107-118.

5. **Abdulelah H Al-Adhroey**, Zurainee M Nor, Hesham M Al-Mekhlafi and Rohela Mahmud. (2011). Evaluation of the use of *Cocos nucifera* as antimalarial remedy in Malaysian folk medicine. *Journal of Ethnopharmacology*, 134, 988-991.
6. **Abdulelah H Al-Adhroey**, Zurainee M Nor, Hesham M Al-Mekhlafi & Rohela Mahmud. Antiplasmodial activity of *Labisia pumila*, a common Malaysia medicinal plant. In preparation.

ii. Presentations in local and international conferences and seminars

1. **Abdulelah H Al-Adhroey**, Zurainee M Nor, Hesham M Al-Mekhlafi and Rohela Mahmud. Prospective study on anti-malarial activities of Malaysian traditional medicinal plants. **45th Annual Scientific Seminar of MSPTM**, 18-19 March 2009. **Poster.**

2. **Abdulelah H Al-Adhroey**, Zurainee M Nor, Hesham M Al-Mekhlafi and Rohela Mahmud. Community awareness related to transmission, treatment and prevention of malaria in aboriginal and rural endemic areas, Peninsular Malaysia. **46th Annual Scientific Seminar of MSPTM**, 24-25 March 2010. P.99. **Poster.**

3. **Abdulelah H Al-Adhroey**, Zurainee M Nor, Hesham M Al-Mekhlafi and Rohela Mahmud. Acute oral toxicity and anti-malarial activities of *Cocos nucifera* (Kelapa) and *Piper betle* (Sirih): anti-malarial remedies used to treat malaria in malaria endemic areas in Peninsular Malaysia. **Expo University of Malaya** 1-3 April, 2010. p. 52. **Poster.**

4. **Abdulelah H Al-Adhroey**, Zurainee M Nor, Hesham M Al-Mekhlafi and Rohela Mahmud. Ethnobotanical survey on Malaysian traditional anti-malarial plants and anti-plasmodial activities of *Labisia pumila* (Kacip Fatimah) and *Languas galanga* (langkuas). **Expo University of Malaya** 1-3 April, 2010. p. 52. **Poster.**

5. **Abdulelah H Al-Adhroey**, Zurainee M Nor, Hesham M Al-Mekhlafi and Rohela Mahmud. Ethnopharmacological basis of some Malaysian antimalarial plants. **Joint International Tropical Medicine Meeting 2010 (JITMM2010) and the International Malaria Colloquium 2010 (IMC2010).** Bangkok, Thailand. **Oral.**

B. Publications not arising from this thesis

1. Sawadogo C. W., Mohammed A. AL-Kamarany, Hesham M. Al-Mekhlafi, ELKarbane M., **Abdulelah H. Al-Adhroey**, Cherrah Y. 1 and Bouklouze A. (2011). The Quality Control of Chloroquine Tablets Available in Africa. *Annals of Tropical Medicine and Parasitology, 105*, 447-453. (*ISI/SCOPUS Cited Publication*)

2. Abdulhamid Ahmed, Hesham M Al-Mekhlafi, **Abdulelah H Al-Adhroey** and Johari Surin. (2012). Soil-transmitted helminthiasis: A critical but neglected factor influencing school participation of aboriginal children in rural Malaysia. IN PRESS, *P*arasitology. (*ISI/SCOPUS Cited Publication*).

3. Abdulhamid Ahmed, Hesham M. Al-Mekhlafi, Seow Huey Choy, Init Ithoi, **Abdulelah, H. Al-Adhroey**, Awatif M. Abdulsalam and Johari Surin. (2011). The burden of moderate-to-heavy soil-transmitted helminths infections among rural Malaysian Aborigines: An urgent need for an integrated control programme. *Parasites & Vectors*, *4*, 242. (*ISI/SCOPUS Cited Publication*)

4. Abdulhamid Ahmed, Hesham M Al-Mekhlafi, **Abdulelah H Al-Adhroey** A and Johari Surin, 2011. Polyparasitism and burden of infection by soil transmitted helminths among aboriginal school children in Satak, Raub, Pahang, Malaysia. 47th Annual Conference of Malaysian Society of Parasitology and Tropical Medicine, 3-4 March 2011. P. 111.

C. Reviewer in international journals

1. Journal of Molecules
2. Journal of Medicinal Plants Research
3. Journal of Pharmacognosy and Phytotherapy
4. International Research Journal of Plant Science
5. Journal of Medicine and Medical Sciences
6. African Journal of Biochemistry Research