

**UNIVERSITI SAINS MALAYSIA
GERAN PENYELIDIKAN UNIVERSITI PENYELIDIKAN
LAPORAN AKHIR**

**ANTITUMOUR EFFECTS OF LOCAL PLANTS, SEEDS AND
HONEY ON HUMAN LEUKEMIA CELL LINES AND CML
INDUCED MICE MODEL**

PENYELIDIK

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2016



RU GRANT FINAL REPORT

Title of Research:	ANTITUMOR EFFECTS OF MADU LEBAH TUALANG ON HUMAN LEUKEMIA CELL LINE (K562)
Account No:	1001/PPSP/8120202
Researcher Leader:	PROF ROSLINE HASSAN

UNIVERSITI SAINS MALAYSIA
DITTDIMA
04 NOV 2015
Pejabat Bahagian Penyelidikan
Pusat Pengajian Sains Perubatan

Please use this checklist to self-assess your report before submitting to RCMO.
Checklist should accompany the report.

NO.	ITEM	PLEASE CHECK (✓)		
		PI	JKPTJ	RCMO
1	Completed Final Report Form	✓	✓	/
2	Project Financial Account Statement (e-Statement)	✓	✓	/
3	Asset/Inventory Return Form (<i>Borang Penyerahan Aset/Inventori</i>)	✓	✓	/
4	A copy of the publications/proceedings listed in Section D(ii) (Research Output)	✓	✓	/
5	Comprehensive Technical Report	✓	/	/
6	Other supporting documents, if any	NIL	✓	/
7	Project Leader's Signature	✓	/	/
8	Endorsement of PTJ's Evaluation Committee		✓	/
9	Endorsement of Dean/ Director of PTJ's			/

Project Code :
(for RCMO use only)



RU GRANT FINAL REPORT FORM

Please email a softcopy of this report to rcmo@usm.my

A	PROJECT DETAILS
i	Title of Research: <i>Antitumor Effects of Madu Lebah Tualang on Human Leukemia Cell Line (K562)</i>
ii	Account Number: <i>1001/PPSP/8120202</i>
iii	Name of Research Leader: <i>Prof Rosline Hassan</i>
iv	Name of Co-Researcher: 1. Prof Dr. Abdul Aziz Baba 2. Dr. Abu Dzarr Ganesh Abdullah 3. Dr. Tariq M.Roshan 4. Prof Madya Dr Nik Soriani Yaacob 5. Prof Madya Dr Siti Amrah Sulaiman
v	Duration of this research: a) Start Date : <u>October 2007</u> b) Completion Date : <u>September 2010</u> c) Duration : <u>3 years</u> d) Revised Date (if any) : <u>19 September 2010 – 18 April 2011</u>
B	ABSTRACT OF RESEARCH
	<p><i>(An abstract of between 100 and 200 words must be prepared in Bahasa Malaysia and in English. This abstract will be included in the Report of the Research and Innovation Section at a later date as a means of presenting the project findings of the researcher/s to the University and the community at large)</i></p> <p>ABSTRACT</p> <p><i>Tualang Honey possesses as therapeutic potential in wound healing, antimicrobial activity and anti-proliferative against several cancer model such as oral squamous cell carcinomas (OSCC), human osteosarcoma (HOS), human breast (MCF-7 and MDA-MB-231) and cervical (HeLa) cancer cell lines. The aim of this study was to evaluate the apoptosis effect of natural local honey "Tualang Honey" on leukemia cell line. In order to evaluate this effect, leukemia cell line (K562) and normal mononuclear cell isolate from peripheral blood were grown in RPMI 1640 culture medium. Both cell lines were</i></p>

incubated with increasing concentrations of Tualang Honey for 24 hours at 37°C. After incubation, they were evaluated for cytotoxicity and apoptotic activity. The IC 50 value against K562 cell line was determined at 0.6% (18ul) after 24 hours. Apoptosis was seen in both K562 and mononuclear cell after incubation with Tualang Honey. However the percentage of apoptosis was much higher with K562 compared to mononuclear cell. At the concentration of IC50 (0.6%), Tualang Honey gave the 53.9% apoptosis activity to K562, as opposed to mononuclear cell (37.4%) ($p < 0.05$). Therefore Tualang Honey is shown to be a potential anti-leukemic substance.

ABSTRAK

Madu Tualang memiliki potensi sebagai penyembuh dalam merawat luka, mempunyai kegiatan agen antimikrob dan anti proliferasi dalam menentang beberapa model sel kanser seperti sel oral skuamoid karsinoma (OSCC), sel manusia osteosarkoma (HOS), sel kanser payudara (contohnya; MCF-7 dan MDA-MB-231) dan sel kanser servikal (HeLa). Tujuan kajian ini ialah untuk menilai kesan apoptosis oleh madu lebah tempatan semulajadi iaitu Madu Lebah Tualang pada sel leukemia. Untuk menilai kesan ini, sel leukemia (K562) dan sel normal mononuklear diasingkan dari darah periferi dan dibiakkan dalam medium kultur dalam RPMI 1640. Kedua-dua sel ini telah dirawat dengan beberapa dos madu lebah tualang selama 24jam pada suhu 37°C. Selepas penderaman, kadar ketoksikan dan kegiatan apoptotik telah dinilai dan diperhatikan. Dos 0.6%(18ul) telah memberikan kadar 50% kematian sel dalam masa 24jam, dan diambil sebagai IC50. Apoptosis dapat dilihat dalam kedua-dua sel K562 dan mononuklear selepas penderaman dengan madu lebah tualang. Bagaimanapun peratusan kegiatan apoptosis adalah lebih tinggi pada K562 berbanding dengan sel mononuklear. Pada dos IC50 iaitu (0.6%), madu lebah tualang telah memberi 53.9% kadar kegiatan apoptosis kepada K562, berbanding sel mononuklear (37.4%) ($p < 0.05$). Justeru Madu Lebah Tualang telah menunjukkan potensi untuk menjadi salah satu bahan anti leukemia.

C BUDGET & EXPENDITURE

i

Total Approved Budget : RM 152,500.00

Yearly Budget Distributed

Year 1 : RM 53500.00

Year 2 : RM 99000.00

Year 3 : RM

Total Expenditure : RM 152,475.71

Balance : RM 24.29

Percentage of Amount Spent (%) : 99.98%

Please attach final account statement (eStatement) to indicate the project expenditure

ii Equipment Purchased Under Vot 35000

No.	Name of Equipment	Amount (RM)	Location	Status