UNIVERSITI SAINS MALAYSIA
GERAN PENYELIDIKAN UNIVERSITI PENYELIDIKAN
LAPORAN AKHIR

HEALTH AND SAFETY: GENETIC RELATEDNESS OF ENVIRONMENTAL EXPOSURE OF LESTOSPIRAL PRE- AND POST FLOOD: TOWARDS STRATEGIC PREVENTION OF LEPTOSPIROSIS

PENYELIDIK

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KEMENTERIAN PENDIDIKAN MALAYSIA

FINAL REPORT
GERAN PENYELIDIKAN PENGURUSAN BENCANA BANJIR
Laporan Akhir Skim Geran Penyelidikan Fundamental (FRGS)
Tahun 2015

A

RESEARCH TITLE: Genetic Relatedness of Environmental Exposure of Leptospiral Pre- and Post-Flood: Towards Strategic Prevention of Leptospirosis

YEAR: 9 MONTHS

THEME CODE: 1.0 *(Please refer attachment)*

SUBTHEME CODE: 7 HEALTH AND SAFETY

Please Tick (√)

PHASE:	**01: Pre-Disaster**		**02: During Disaster**		**03: Post-Disaster**	/	
AREA:	**01: Preventive**	/	**02: Preparedness**		**03: Rescue anf Recovery**		
	04:Adaptation		**05: Mitigation**				

START DATE: 1 April 2015
END DATE: 30 April 2016

PROJECT LEADER: Dr Nabilah Ismail
I/C / PASSPORT NUMBER:

PROJECT MEMBERS: (including GRA/RA/RO)
1. **Prof Madya Dr Chan Yean Yean**
2. **Prof Madya Dr Azian Harun**
3. **Prof Madya Dr Siti Asma Hassan**

PROJECT ACHIEVEMENT *(Prestasi Projek)*

B

ACHIEVEMENT PERCENTAGE			
Project progress according to milestones achieved up to this period	**0 - 50%**	**51 - 75%**	**76 - 100%**
Percentage (please state #%)			/

RESEARCH OUTPUT		
Number of articles/ manuscripts/ books *(Please attach the First Page of Publication)*	***Indexed Journal***	***Non-Indexed Journal***
Conference Proceeding *(Please attach the First Page of Publication)*	***International***	***National***
		1
Intellectual Property *(Please specify)*		
Number and title of Policy Paper / SOP / Technology Solution *(Please specify)*	1. 2. 3.	

HUMAN CAPITAL DEVELOPMENT

Human Capital	Number				Others (please specify)
	On-going		Graduated		
Citizen	Malaysian	Non Malaysian	Malaysian	Non Malaysian	
No. PHD STUDENT					
Student Fullname: IC / Passport No: Student ID:					
No. MASTER STUDENT					
Student Fullname: IC / Passport No: Student ID:					
No. RA/RO	1 RA				
Student Fullname: IC / Passport No: Student ID:	Mohd Yuszrin				
Total	1 RA				

EXPENDITURE *(Perbelanjaan) as Borang K3(RMC)*

C **Budget Approved** *(Peruntukan diluluskan)* :
Amount Spent *(Jumlah Perbelanjaan)* :

Balance *(Baki)* :
Percentage of Amount Spent :
(Peratusan Belanja)

ADDITIONAL RESEARCH ACTIVITIES THAT CONTRIBUTE TOWARDS DEVELOPING SOFT AND HARD SKILLS
(Aktiviti Penyelidikan Sampingan yang menyumbang kepada pembangunan kemahiran insaniah)

D

International

Activity	Date (Month, Year)	Organizer
(e.g : Course/ Seminar/ Symposium/ Conference/ Workshop/ Site Visit)		

National

Activity	Date (Month, Year)	Organizer
(e.g : Course/ Seminar/ Symposium/ Conference/ Workshop/ Site Visit)		

E	**PROBLEMS / CONSTRAINTS IF ANY** *(Masalah/ Kekangan sekiranya ada)*
	-
F	**RECOMMENDATION** *(Cadangan Penambahbaikan)*
	-
G	**RESEARCH ABSTRACT – Not More Than 200 Words** *(Abstrak Penyelidikan – Tidak Melebihi 200 patah perkataan)*

Leptospirosis is an important worldwide zoonotic disease caused by *Leptospira* spp. The presence of pathogenic *Leptospira* in the environment poses threats to human health. The aim of this study was to isolate and identify *Leptospira* spp. from selected environment in flood affected areas.

Method: Soil and water samples were collected about four to five months post massive flood in 2014 from selected sites in Kelantan. All samples were filtered and cultured according to previously described protocols. Molecular identification of the isolates was performed by partial sequences of 16S rRNA.

Findings: A total of 90 samples comprised of 45 soil and 45 water samples were collected. Based on dark field microscopic observations, 42.2% (38/90) cultures were positive for leptospires with characteristic morphology and motility. The most predominant isolates were pathogenic *Leptospira* including *Leptospira kmetyi, Leptospira interrogans* and *Leptospira kirschneri* which were detected in 26.3% (10/38), 5.3% (2/38) and 2.6% (1/38) of the isolates respectively. *Leptospira* species were not able to be genetically differentiated between pre- and post-flood because single locus 16S rRNA gene sequences has not allowed for intra species differentiation.

Conclusion: This study demonstrates the predominance of clinically significant pathogenic *Leptospira* in the environments which could pose health risks to the community.

Keywords: Isolation, *Leptospira*, environmental samples, flood, Kelantan

Date : 1.6.2016
Tarikh

Project Leader's Signature:
Tandatangan Ketua Projek