

**Short Course
Metodologi
Penelitian - Luar
negeri
(SCMP-LN)**

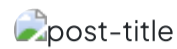
Dr. Mohamad Agus Salim, Drs.MP.

1. Presentasi Proposal Kluster SCMP-LN

[Beranda](#) > [Nasional](#)

Kemenag Seleksi 1.884 Proposal Penelitian

Selasa, 30 Mei 2017 · 08:30 WIB



Tangerang (Kemenag) --- Kementerian Agama melalui Ditjen Pendidikan Islam mulai menyeleksi proposal penelitian para dosen Perguruan Tinggi Keagamaan Islam (PTKI) se Indonesia. Sebanyak 1.884 proposal telah dihimpun dari proses pendaftaran yang dilakukan secara online dan nantinya akan dipilih sekitar 300 an proposal terbaik.

Kasubdit Penelitian dan Pengabdian Kepada Masyarakat M. Zain mengatakan, pendaftaran secara online dilakukan untuk menjamin transparan proses penilaian. "Proposal yang masuk dinilai tim reviewer yang kompeten di bidangnya dan memiliki track record maupun reputasi akademik yang mempuni," ujarnya pada kegiatan Seleksi Proposal Bantuan Penelitian dan Jurnal Ilmiah, Senin (29/05), di Tangerang.

Tim akan melakukan proses seleksi administrasi guna menjanging proposal pengusul yang memenuhi persyaratan administratif maupun substansi. "Tahap ketiga, proposal pengusul yang direkomendasikan oleh para penilai akan diundang dalam seminar proposal dengan format presentasi. Hal ini dimaksudkan untuk melakukan penilaian pada konten proposal penelitian yang diajukan," terang M. Zain.

Untuk mengevaluasi proses penelitian di lapangan, lanjut M. Zain, Direktorat Pendidikan Tinggi Keagamaan Islam akan menyelenggarakan seminar evaluasi pertengahan (progress report). Dalam seminar ini, dana bantuan bisa dihentikan jika menurut tim reviewer tidak memenuhi syarat untuk dilanjutkan. Adapun besaran dana bantuan penelitian sangat ditentukan oleh presentasi nominee pada forum seminar proposal penelitian.

"Reviewer akan melihat dan menakar beberapa aspek terkait ruang lingkup penelitian, lokasi penelitian, dan sumber data penelitian (pustaka atau lapangan) dalam merekomendasikan jumlah dana penelitian yang akan diberikan," ungkap Zain.

Kasi Penelitian dan Pengembangan Hak Kekayaan Intelektual Anis Masykhur menambahkan, 1.884 proposal yang masuk meliputi proposal penelitian, publikasi ilmiah, dan pengabdian kepada masyarakat.

Berikut jumlah masing-masing proposal yang masuk pada tahun 2017:

Bidang Penelitian

Penelitian Pembinaan/Kapasitas (PPK)_247 Pendaftar

Penelitian Dasar - Sosial Keagamaan (PDSK)_ 183 Pendaftar

Penelitian Dasar Pengembangan Prodi (PDPS)_181 Pendaftar

Penelitian Terapan dan Pengembangan - Integrasi Keilmuan (PTIK)_101 Pendaftar

Penelitian Terapan dan Pengembangan - Islam Transformatif (PTIT)_58 Pendaftar

Penelitian Dasar - Berperspektif Gender (PDPG)_57 Pendaftar

Penelitian Terapan dan Pengembangan - Penelitian Kebijakan (PTKJ)_55 Pendaftar

Short Course Metodologi Penelitian di Luar Negeri (SCMP-LN)_39 Pendaftar

Penelitian Kolaboratif Internasional (PSKNI)_33 Pendaftar

Short Course Metodologi Penelitian di Dalam Negeri - Budaya Islam (SCBI)_26 Pendaftar

**SCMP-LN**

Research Fellowships Luar Negeri (RFLN)_18 Pendaftar

Short Course Metodologi Penelitian di Dalam Negeri - Kuantitatif (SCK)_17 Pendaftar

Short Course Community Outreach Barat (SCCOB)_15 Pendaftar

Short Course Community Outreach Timur (SCCOT)_6 Pendaftar

Bidang Pengabdian

Pengabdian Kompetitif Kolektif - berbasis masyarakat (PMC)_219 Pendaftar

Pengabdian Masyarakat Pemula (PPP)_121 Pendaftar

Pengabdian Kompetitif Kolektif - Berbasis madrasah (PMM)_100 Pendaftar

Pengabdian Kompetitif Kolektif - berbasis pesantren (PMP)_73 Pendaftar

Pengabdian Kompetitif Kolektif - berbasis masjid (PMTI)_60 Pendaftar

Pengabdian Kompetitif Kolektif - Service Learning (PMSL)_31 Pendaftar

Bidang Publikasi Ilmiah

Peningkatan Mutu Publikasi Jurnal Pembinaan (PMPB)_82 Pendaftar

Peningkatan Mutu Publikasi Jurnal Terakreditasi (PMPA)_40 Pendaftar

Penghargaan Jurnal Terakreditasi (PJA)_21 Pendaftar

Karya yang Berpotensi Mendapat HKI (HKI)_20 Pendaftar

Internship Jurnal Ilmiah Internasional (IJII)_15 Pendaftar

Ekspose Karya Ilmiah (EKI)_11 Pendaftar

Entry Ensiklopedi Islam (EII)_6 Pendaftar

Penghargaan Jurnal Internasional Bereputasi (PJIB)_5 Pendaftar

Penghargaan Jurnal Terakreditasi Online (PJAEO)_2 Pendaftar

Hadir dalam seleksi proposal penelitian, beberapa guru besar di lingkungan PTKI dan peneliti dari LIPI. (wildan/mkd/mkd)

Tags: [# PTK](#)

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Rekomendasi

[Pernah Ambil Biaya Pelunasan, Ini Kewajiban Jemaah Lunas Tunda 2020 dan 2022](#)

Minggu, 30 April 2023

[AICIS 2023: Ulama Pesantren dan Akademisi Asing Kaji Ulang Relevansi Fikih dan Kemanusiaan Digital](#)

Sabtu, 29 April 2023



uin

KEMENTERIAN AGAMA
UNIVERSITAS ISLAM NEGERI (UIN)
SUNAN GUNUNG DJATI BANDUNG
FAKULTAS SAINS DAN TEKNOLOGI

Jalan A.H. Nasution No. 105 Cibiru – Bandung 40134 Telp. 022-7806525 Fax. 022-7803936 website: <http://fist.uinsgd.ac.id>

SURAT TUGAS

Nomor : B- 2026/Un.05/III.7/PP.00.9/07/2017

Menimbang : Berdasarkan surat dari Ketua Jurusan Biologi Fakultas Sains dan Teknologi UIN Sunan Gunung Djati Bandung Nomor : B-102/Un.05/III.7.2/PP.00.9/07/2017 tanggal 28 Juli 2017 perihal Permohonan Surat Tugas dan SPPD

Dasar : 1. Undang-undang Nomor 5 Tahun 2014 tentang Aparatur Sipil Negara;
2. Peraturan Pemerintah Nomor 4 Tahun 2014 tentang Penyelenggaraan Pendidikan Tinggi dan Pengelolaan Perguruan Tinggi;
3. Peraturan Presiden RI Nomor 57 Tahun 2015 tentang Perubahan IAIN menjadi UIN Sunan Gunung Djati Bandung;
4. Keputusan Menteri Agama RI Nomor : B.II/3/06361 tanggal 06 Juli 2015 tentang Pengangkatan Rektor UIN Sunan Gunung Djati Bandung;
5. Peraturan Menteri Agama RI Nomor 7 Tahun 2013 jo. Peraturan Menteri Agama RI Nomor 77 Tahun 2013 tentang Ortaker UIN SGD Bandung;
6. Peraturan Menteri Agama RI Nomor 4 Tahun 2016 tentang Pencabutan Peraturan Menteri Agama RI Nomor 16 Tahun 2006 tentang tata Persuratan Dinas di Lingkungan Departemen Agama;
7. Keputusan Menteri Agama RI Nomor 8 Tahun 2016 tentang Kode Jabatan, Singkatan, dan Akronim pada Kementerian Agama;
8. Keputusan Menteri Agama RI Nomor 9 Tahun 2016 tentang Pedoman Tata Naskah Dinas pada Kementerian Agama;
9. Keputusan Rektor UIN Sunan Gunung Djati Bandung, Nomor : Un.05./II.2/Kp.07.6/151/2015, tentang Pengangkatan Dekan Fakultas Sains dan Teknologi UIN Sunan Gunung Djati Bandung.

MEMBERI TUGAS

Kepada : Nama : Dr. Agus Salim, Drs., MP
NIP : 196708181993031003
Pangkat/Gol : Lektor Kepala-IV/a
Jabatan : Dosen

Untuk : Menghadiri undangan Presentasi Proposal Penelitian Kluster SCMP (Short Course Metodologi Penelitian) yang dilaksanakan pada tanggal 31 Juli – 02 Agustus 2017 di Bekasi Jawa Barat.

Bandung, 28 Juli 2017

Dekan,

No. Reg: SCMP-LN/8036-1/2017

Proposal Penelitian Kompetitif



MICROALGAE *Haematococcus pluvialis* PROTECT AGAINST NAPHTHALENE-INDUCED CATARACT FORMATION IN MICE LENS

Disusun Oleh:

**Mohamad Agus Salim
(UIN Sunan Gunung Djati Bandung)**

**DIREKTORAT PENDIDIKAN TINGGI KEAGAMAAN ISLAM
DIREKTORAT JENDERAL PENDIDIKAN ISLAM
KEMENTERIAN AGAMA RI
TAHUN 2017**

MICROALGAE *Haematococcus pluvialis* PROTECT AGAINST NAPHTHALENE INDUCED CATARACT FORMATION IN MICE LENS

1. Introduction

Cataract, one of the major global health problems, is defined as opacity of the crystalline lens that may lead to blindness (Singh *et al.*, 2012). Cataract is known to reduce vision in about 80 million people (Patel *et al.*, 2012) and cause blindness in about 18 million people moreover this number tends to double every 20 to 25 years. It is said that this number will increase due to changes in our lifestyle along with increasing numbers of old people. A cataract interferes with vision, and is the most frequent cause of visual impairment worldwide, especially for the elderly because the incidence of cataracts increases with increasing age. Currently surgery is the most common and accepted treatment protocol for cataracts that can be employed at different stages of cataractogenesis and followed by replacement with synthetic implants. Despite the good efficacy of surgical protocols for treating cataracts, there are limitations such as cost, time of diagnosis and inadequate service in some countries which decrease treatment outcome and leads to cataracts-induced disabilities and blindness (Lee *et al.*, 2010). It has been estimated that age-related cataracts is the leading cause of more than half of the blindness worldwide (Cariello *et al.*, 2006). The accumulation of cataract patients (backlog) is quite worrying as an example in Indonesia, cataracts are growing 210,000 people per year, only 80,000 people per year have been treated for cataract surgery (Singh *et al.*, 2012).

Cataract formation is mainly an age-related phenomenon, although socioeconomic and lifestyle factors such as nutritional deficiency, sunlight, smoking, environmental factors, lack of consumption of antioxidants may also influence its occurrence. It has been well known that oxidative stress induces biochemical changes in the constituents of the lens during cataract development (Atif *et al.*, 2014). Impairment caused by oxidative stress during cataract formation promotes alterations in the physicochemical properties of crystallin proteins of lens. Efforts have been taken to explore the traditional medicine to delay and retard the progression of cataract. Several numbers of plants and synthetic compounds has been reported to possess anti-cataract activity (Kalekar *et al.*, 2014). With respect to this, it can be hypothesized that dietary antioxidants may be useful in the prevention and/or mitigation of cataract. Cataract prevention is important because the economic burden and

prevalence of cataract surgery is not uniform in developing countries. Epidemiological studies have suggested that dietary modifications or antioxidant supplements can reduce the risk of cataract occurrence. Numerous scientific reports have shown that there is a close correlation between consumption of dietary antioxidants and decreased risk of cataract cases. Thus finding a means to delay cataract may curb the growing number of these operations. For example it has been hypothesized that delaying cataract by 10 years could reduce the number of extractions by 50%. So it is appropriate to search for a drug which can prevent or delay cataract formation (Nakazawa *et al.*, 2015).

Since numerous adverse effects of synthetic antioxidants have been reported (Morais *et al.*, 2015), much attention has been paid to natural source as rich source of antioxidants. From earlier studies it was found that microalgae possess significant antioxidant potential with anticataract activity (Gouveia, 2014). Several phytoconstituents from microalgae origin may indirectly inhibits the opacity lens and capable of reducing the oxidative stress by scavenging the free radicals and prevention cell damage (Heydarizade *et al.*, 2013). The natural antioxidant such as ascorbic acid, tannin, alkaloid, saponin, steroid, flavonoid, phenol hydroquinon and carotinoids have been screened and it was found that antioxidant has protective action against cataract. *Haematococcus pluvialis* is a major source of dietary asthaxanthin and other phytochemical substances has been reported to have antioxidant activity and ability in delaying the progression of degenerative diseases including cataract (Patel *et al.*, 2011). Cataract formation induced by naphthalene is similarities to that of age related cataract in humans. Naphthalene is considered as underlying mechanism of cataract development in naphthalene induced animal model. This study aim to determine the potentiality of *Haematococcus pluvialis* to protect against naphthalene induced cataract formation in mice lens and to define the protective efficacy *Haematococcus pluvialis* on organs histology related to cataractogenesis in animal model.

2. Objectives

Based on the background that the objectives of this research are to determine :

1. The ability of *Haematococcus pluvialis* in inhibiting the cataract formation in mice (*Mus musculus*) lens.
2. The ability of *Haematococcus pluvialis*, in stabilizing cataract indicators such as protein content, water content in mice lens.
3. The content of bioactive substances of microalgae *Haematococcus pluvialis*, which functions as an antioxidant that can prevent the cataract formation in mice lens.

3. Problem Formulation

Based on the objectives to be achieved, it can be arranged some problem formulation as follows :

1. How does the ability of *Haematococcus pluvialis* in inhibiting the cataract formation in mice lens.
2. How does the ability of *Haematococcus pluvialis* in stabilizing cataract indicators such as protein content, water content in mice lens.
3. What are bioactive substances from microalgae *Haematococcus pluvialis* which function as an antioxidant that can prevent the cataract formation in mice lens.

4. Previous Research

The same study with this research proposal in using the potential microalgae on preventing cataract formation is still rare in the world especially in Indonesia. Journals in the country are not yet found on a similar theme with this research. Some journal have been found on cataract treatment using higher plants as herbal remedies or herbal medicine. Utilization of the plant for the treatment of cataracts such as extracts of *Centella asiatica* (Yuliani, 2012), leaves of *Phyllanthus niruri* (Gupta *et al.*, 2009), extracts bilberry (Sulistya and Mutammima, 2011), black cumin *Nigella Sativa* (Shaber *et al.*, 2011). Utilization of microalgae for the treatment of cataracts can be found in research Vedi *et al.* (2013) showed *Spirulina* 1g/kg body weight / day can increase levels of glutathione on naphthalene-induced cataract mice lens compared with controls. Likewise, the study of the Kumari and Anbarasu (2014) the use of pigment phycocyanin is able to improve the structure of the mouse eye lens proteins induced by sodium selenites as cataractogenesis agent. Previous Kothadia *et al.* (2011) uses the pigment phycocyanin to treat mice galactose induced cataracts showed increase levels of glutathione, protein content and water content.

5. Contribution

The research is expected to produce drugs or functional foods (*Nutraceutical*) from microalgae *Haematococcus pluvialis* can be reduced cataract prevalence in Indonesia. With the efficacy of these microalgae can prevent the formation of cataracts (cataractogenesis). Moreover the valuable information provided in the present study will help researches in developing an alternative method rather than surgery for the treatment of cataract which will

Statistical Analysis

Values are presented as mean \pm SEM. Results were compared by one-way ANOVA followed by Duncan's test. A value of $p < 0.001$ was considered significant.

7. Implementation Schedule

Implementation time which is expected to complete this study are presented in Table 1.

Table 1. Time Implementation of Research Activities

No	Activities	1 st month				2 nd month				3 rd month				4 th month				5 th month			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Literature study	■	■	■	■																
2	Proposal Review			■																	
3	Proposal Review Result Writing				■																
4	Proposal Seminar					■	■	■	■												
5	Data Collection						■	■	■	■	■	■	■								
6	Data Analysis										■	■	■								
7	Research Report Writing											■	■	■	■	■	■				
8	Research Report Seminar														■	■	■				
9	Research Report Evaluation															■	■				
10	Published Research Report																	■	■	■	■

7. Personnel

The research included experts in microalgae and animal physiology to justify the research results.

2. Pengumuman Penerima Bantuan



KEMENTERIAN AGAMA REPUBLIK INDONESIA
DIREKTORAT JENDERAL PENDIDIKAN ISLAM

Jl. Lapangan Banteng Barat No. 3-4 Jakarta Tel. 021-3811642, 3811654, 3853449
Fax: 021-3812344, 021-34833981 <http://pendis.kemenag.go.id/diktis.kemenag.go.id>

J A K A R T A

Nomor : 4526.A/Dj.VDt.I.III/5/HM.01/9/2017
Sifat : Biasa
Lamp : 1 (Satu) Dokumen
Perihal : *Pengumuman Penerima Bantuan Short Course Metodologi Riset Internasional (SCMP)* Jakarta, 12 September 2017

Kepada Yth.
Penerima Dana Bantuan
Short Course Metodologi Riset Internasional
(Daftar Nama Terlampir)
di-
Tempat

Assalamu'alaikum Wr. Wb.

Berdasarkan Surat Keputusan Direktur Jenderal Pendidikan Islam Kementerian Agama RI No. 4984 tentang Penetapan Penerima Bantuan Metodologi Riset Berstandar Internasional Tahun Anggaran 2017, kami sampaikan beberapa hal sebagai berikut:

- Kepada penerima bantuan sebagaimana *terlampir* agar segera mengirimkan *soft copy passport*, NPWP, KTP, Kartu Keluarga (KK), pas foto ukuran 3,5x4,5 biometriss 80 persen wajah dengan *background* putih, *curriculum vitae*, surat tugas dan surat izin dari rektor serta membuat abstrak proposal dengan kisaran 300 s.d. 500 kata dalam bahasa Inggris.
- Dokumen sebagaimana dimaksud pada point a segera dikirimkan ke email litabdimas@gmail.com paling lambat tanggal 22 September 2017.
- Tahapan kegiatan sebagai berikut:

No	Hari	Kegiatan
1	2 - 3 Oktober 2017	Pengurusan Visa dan lain-lain
2	30 s.d. 31 Okt 2017	Pre Departure ke Leiden Universiteit
3	1 Nov s.d. 15 Des 2017	Short Course di Leiden Universiteit
4	16 -17 Des 2017	Post Departure

- Berkenaan dengan tempat kegiatan dan lain-lain pada tanggal sebagaimana dimaksud pada point c akan diinformasikan kemudian.

Demikian surat ini disampaikan, atas kerja samanya disampaikan terima kasih.

Wassalamu'alaikum Wr. Wb.

a.n. Direktur Jenderal
PIL. Direktur Pendidikan Tinggi Keagamaan Islam

TTD,

Imam Safe'i

Tembusan:
Yth. Direktur Jenderal Pendidikan Islam (*sebagai laporan*)

Lampiran
KEPUTUSAN PELAJAR PEMBUAT KOMITMEN DIREKTORAT PENDIDIKAN TINGGI KEAGAMAAN ISLAM
DIREKTORAT JENDERAL PENDIDIKAN ISLAM
Nomor: 4984 Tahun 2017

TENTANG
BANTUAN METODOLOGI RISET BERSTANDAR INTERNASIONAL
DIREKTORAT PENDIDIKAN TINGGI KEAGAMAAN ISLAM
TAHUN 2017

NO	NO REGISTRASI	PEMUSUL	JUDUL	INSTITUSI
1	SCMP-LN/8533-1/2017	Gen Izzah Nafata Fira	Tuberculosis among Malayah Orish Reception of the Qur'an in Popular Sufism in Indonesia	UIN Sunan Kalijaga
2	SCMP-LN/8078-1/2017	Laila Anthes Hendawati	Religion, Culture, and Health: Understanding Smoking Behaviour in Pesantren	UIN Syarif Hidayatullah Jakarta
3	SCMP-LN/8433-1/2017	Devy Effa Nur Rahmawati	High Cultural Hybridity on Indonesian Muslim Fashion Designers Instagram	UIN Maulana Malik Ibrahim Malang
4	SCMP-LN/7960-1/2017	Hasbiyallah	De-Radicalization of High Education	UIN Sunan Gunung Djati Bandung
5	SCMP-LN/8938-1/2017	Nurul Chajmah	ILLICITDRAMA ACTS BEHIND THE QUR'ANIC EXPRESSIONS IN BISMILLAH AND ALHAMDU LILLAH RECITED BY INDOONESIAN MUSLIM STUDENTS	IAIN Tulungagung
6	SCMP-LN/7726-1/2017	Rozal Muberrah	Constructing Muslim Woman Narration in the Arab Post-9/11	UIN Ar-Raniry Banda Aceh
7	SCMP-LN/8517-1/2017	ATIF ZAEROPI	IMPACT OF ISLAMIC HUMAN RESOURCE PRACTICES ON JOB SATISFACTION IN BATU, MAL WAATTANWL IN BOGOR	Insan Triangg Khawass Islam Tasika
8	SCMP-LN/8008-1/2017	Devy Handriawan	Makalah: Wafatyyaw & Tawakkul Asalika Ta'awul Lughah al-Wafatyyah Li Tadhiri Murasyid As-Syarah Rijazati Lumbik	IAI HANZARWADI JW PANCOR
9	SCMP-LN/8129-1/2017	Nurul Izzah	THE CONCEPT OF WEALTH MANAGEMENT FROM EARLY MUSLIM THINKER IN ISLAMIC MEDIEVAL AGE	INSTITUT STUDI ISLAM DAN ISLAMISASI PONOROGO
10	SCMP-LN/8368-1/2017	AQUS SAMBUDIBASAN	MULTICULTURAL EDUCATOR AND SHENKA TUNGGAL IBA; SOCIETY IN INDONESIA BASED ON SHUPIS PERSPECTIVE (Case Study on The Tradition of Reeling Tazki in Communities of Qadiriyyah-Baqdadiyah Order (DQ) Pondok Pesantren Suryabaya)	IAI Lailah Muberrah
11	SCMP-LN/8161-1/2017	Iri Wahyuni	Peer Corrective Feedback on Writing of Islamic College Students with Different Cognitive Styles	STAIN Kediri

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NO	NO RESKRIPSI	PIHAK	JUDUL	INSTITUSI
II	8CMP-LN/5035-1/2017	Mohamad Agus Salim	Microalgae <i>Chlorella pyrenoidosa</i> Project Against Nephritis Reduced Cataract Formation in Mice Lens	UIN Sunan Gunung Djati Bandung

Dianjukan Oleh
 Direktur Jenderal Pendidikan Islam

Pejabat Pembuat Keputusan
 Direktur Pendidikan Tinggi Keagamaan Islam
 Direktorat Jenderal Pendidikan Islam

TTD,
KAMARUDDIN AMIN

TTD,
IMAM SAFET

1. Ditujukan pada Keputusan Direktur Jenderal Pendidikan Islam Nomor 8CMP-LN/5035-1/2017 tentang Penetapan Penelitian Disertasi Murni yang Disetujui dan Ditetapkan Tahun Anggaran 2017, yang sebelumnya telah ditandatangani oleh pejabat pembuat keputusan.

2. Kepada seluruh pejabat yang bersangkutan dituntut agar dapat melaksanakan tugas dan tanggung jawab yang telah ditetapkan dalam Keputusan tersebut.

3. Demikian keputusan ini disampaikan sebagai informasi dan untuk dilaksanakan sebagaimana mestinya.

4. Keputusan ini berlaku sejak tanggal ditetapkan.

5. Keputusan ini berlaku sejak tanggal ditetapkan.

6. Keputusan ini berlaku sejak tanggal ditetapkan.

Wassalamu'alaikum Wr. Wb.

3. Surtug UIN bandung & Undangan Pre-departure Kemenag



**KEMENTERIAN AGAMA REPUBLIK INDONESIA
UNIVERSITAS ISLAM NEGERI
SUNAN GUNUNG DJATI BANDUNG**

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Telp. (022) 7800525 Fax. (022) 7802844

Website : www.uinsgd.ac.id, e-mail: info@uinsgd.ac.id

SURAT TUGAS

Nomor: B-1895/UN.05/II.2/Kp.01.1/9/2017

- Menimbang** :
- Berdasarkan surat Direktorat Jenderal Pendidikan Islam Kementerian Agama RI Nomor: 4526.A/Dj.I/Dt.I.III./5/HM.01/09/2017 tanggal 12 September 2017 tentang Pengumuman Penerima Bantuan Short Course Metodologi Riset International (SCMP) dan surat Dekan Fakul
 - bahwa berdasarkan pertimbangan sebagaimana dimaksud dalam hurup a, nama tercantum dalam surat tugas mampu dan cakap untuk melaksanakan tugas sebagaimana dimaksud;
- Dasar** :
- Undang-undang Nomor 5 Tahun 2014 tentang Aparatur Sipil Negara;
 - Peraturan Pemerintah Nomor 4 Tahun 2014 tentang Penyelenggaraan Pendidikan tinggi dan Pengelolaan Perguruan Tinggi;
 - Peraturan Presiden RI Nomor 57 Tahun 2005 tentang Perubahan IAIN menjadi UIN Sunan Gunung Djati Bandung;
 - Keputusan Menteri Agama RI Nomor : B.II/3/06361 tanggal 06 Juli 2015 tentang pengangkatan Rektor UIN Sunan Gunung Djati Bandung.
 - Peraturan Menteri Agama RI Nomor 7 Tahun 2013 jo. Peraturan Menteri Agama RI Nomor 77 Tahun 2013 tentang Ortaker UIN SGD Bandung.

MEMBERI TUGAS

Kepada :

Nama	: Dr. Mohamad Agus Salim, Drs., MP.
NIP	: 196708181993031003
Pangkat / Gol. Ruang	: Pembina (IV/a)
NPWP	: 694830472446000
Jabatan	: Lektor Kepala pada Fakultas Sains dan Teknologi UIN Sunan Gunung Djati Bandung.

Untuk : Short Course Metodologi Penelitian Luar Negeri (SCMP LN) pada tanggal 30 Oktober sampai dengan 15 Desember 2017 di Lieden University.

Selesai melaksanakan tugas segera menyampaikan laporan kepada pemberi tugas sesuai ketentuan.

Bandung, 20 September 2017

An. Rektor
Kepala Biro AUPK,

Drs. H. Akhmad Lutfi, MM.
NIP. 196307161988031002

Tembusan:
Rektor UIN Sunan Gunung Djati Bandung (sebagai laporan).



KEMENTERIAN AGAMA REPUBLIK INDONESIA
DIREKTORAT JENDERAL PENDIDIKAN ISLAM

Jl. Lapangan Banteng Barat No. 3-4 Jakarta Tel. 021-3811642, 3811654, 3853449
Fax: 021-3812344, 021-34833981 <http://pendis.kemenag.go.id/diktis.kemenag.go.id>

J A K A R T A

Nomor : /Dj.I/Dt.I.III/5/HM.01/10/2017 Jakarta, 23 Oktober 2017
Sifat : Biasa
Lamp : 1 bundel
Perihal : *Undangan Pre Departure 1 Penerima Bantuan Short Course Metodologi Riset Internasional (SCMP)*

Kepada Yth.
Penerima Dana Bantuan
Short Course Metodologi Riset Internasional
(Daftar Nama Terlampir)
di-
Tempat

Assalamu'alaikum Wr. Wb.

Berdasarkan Surat Keputusan Direktur Jenderal Pendidikan Islam Kementerian Agama RI No. 4984 tentang Penetapan Penerima Bantuan Metodologi Riset Berstandar Internasional Tahun Anggaran 2017, kami sampaikan bahwa tahapan sebelum keberangkatan ke Leiden university Belanda adalah mengurus visa. Oleh karena itu kami mengharap kehadiran saudara/i pada :

Hari/Tgl : Kamis – Jum`at, 26-27 Oktober 2017
Waktu : 13.00 WIB- sda
Tempat : Wisma kementerian Agama
Jl. Jaksa No.30, RT.4/RW.4, Kb. Sirih, Mentang, Kota
Jakarta Pusat 10340. Telp. +62 21 31925615
Agenda : Pre Departure 1 (pengurusan Visa Schengen)

Untuk keperluan tersebut, perlu diperhatikan hal-hal sebagai berikut :

1. Membawa surat tugas
2. Biaya ditanggung peserta.

Demikian surat ini disampaikan, atas kerja samanya disampaikan terima kasih.

Wassalamu'alaikum Wr. Wb.

a.n. Direktur Jenderal
Plt. Direktur Pendidikan Tinggi Keagamaan Islam

TTD,

Imam Safe'i

Tembusan:

Yth. Direktur Jenderal Pendidikan Islam (*sebagai laporan*)

4. Surtug & SPD Kemenag RI



KEMENTERIAN AGAMA REPUBLIK INDONESIA
DIREKTORAT JENDERAL PENDIDIKAN ISLAM

Jalan Lapangan Banteng Barat No.3-4 Lantai VII Jakarta
Telp. 021-3811523, 3812344 Fax. 021- 34833881
Website: www.diklis.kemenag.go.id

SURAT TUGAS

NOMOR : 5305/Dj.I/Dt.I.III/Kp.02.3/11/2017

- Menimbang :**
1. bahwa berdasarkan Surat Keputusan Direktur Jenderal Pendidikan Islam Kementerian Agama RI No. 4984 tentang Penetapan Penerima Bantuan Metodologi Riset Berstandar Internasional Tahun Anggaran 2017.
 2. Bahwa berdasarkan Undangan Universitas Leiden Nomor LUCIS UIT 17-019 dan LUCIS UIT 17-020 tentang Academic Cooperation antara Kementerian Agama RI dan Leiden University Center for the Study of Islam and Society (LUCIS).

- Dasar :**
1. Peraturan Menteri Agama Nomor 10 Tahun 2010 tentang Organisasi dan Tata Kerja Kementerian Agama (Berita Negara Republik Indonesia Tahun 2010 Nomor 592) sebagaimana telah beberapa kali diubah terakhir dengan Peraturan Menteri Agama Nomor 16 Tahun 2015 tentang Perubahan Keempat Atas Peraturan Menteri Agama Nomor 10 Tahun 2010 tentang Organisasi dan Tata Kerja Kementerian Agama (Berita Negara Republik Indonesia Tahun 2015 Nomor 348);
 2. Peraturan Menteri Agama Republik Indonesia Nomor 45 Tahun 2015 Tentang Perubahan Atas Peraturan Menteri Agama Nomor 28 Tahun 2013 Tentang Disiplin Kehadiran Pegawai Negeri Sipil Di Lingkungan Kementerian Agama;
 3. dst.....

Memberi Tugas

Kepada :

No.	Nama	Institusi
1	Lien Iffah Nafatu Fina	UIN Sunan Kalijaga
2	Lafa Annisa Hendarmin	UIN Syarif Hidayatullah Jakarta
3	Deny Efta Nur Rakhmawati	UIN Maulana Malik Ibrahim Malang
4	Hasbiyallah	UIN Sunan Gunung Djati Bandung
5	Nurul Chojimah	IAIN Tulungagung
6	Husni Mubarrak	UIN Ar-Raniry Banda Aceh
7	AFIF ZAEROFI	Sekolah Tinggi Ekonomi Islam Tazkia
8	Dony Handriawan	IAI Hamzanwadi NW Pancor
9	Nurizal Ismail	Institut Studi Islam Darussalam Ponorogo
10	AGUS SAMSUL BASSAR	IAI Latifah Mubarakiyah
11	Sri Wahyuni	STAIN Kediri
12	<u>Mohamad Agus Salim</u>	UIN Sunan Gunung Djati Bandung
13	Nur Arliyah Febriani	Perguruan Tinggi Ilmu Al-Qur'an (PTIQ) Jakarta

Untuk :

Mengikuti Short Course Metodologi Penelitian Berstandar Internasional, di Leiden University, Belanda pada tanggal 8 Nopember – 19 Desember 2017.

Jakarta, 6 Nopember 2017

Direktur Pendidikan Tinggi Islam





KEMENTERIAN AGAMA RI
DIREKTORAT JENDERAL PENDIDIKAN ISLAM

Jl. Lapangan Banteng Barat No. 3-4 Jakarta 10710
 Telp. : 021-3812344, Fax. : 021-34833981 www.pendis.kemenag.go.id

Lampiran ke :
 Sheet No :
 Kode Nomor :
 Code No :
 Nomor : SPD/12/10/2017
 Number :

SURAT PERJALANAN DINAS (SPD)

1.	Pejabat Pembuat Komitmen <i>Authorizing Officer</i>	:	DIREKTORAT PENDIDIKAN TINGGI KEAGAMAAN ISLAM
2.	Nama/NIP Pegawai yang melaksanakan perjalanan dinas <i>Name/ Employee Register Number of the assigned officer</i>	:	Mohamad Agus Salim /196708181993031003
3.	a. Pangkat dan Golongan <i>Official rank</i>	:	a.
	b. Jabatan/Instansi <i>Position/Institution</i>	:	b. Dosen / UIN Sunan Gunung Djati Bandung
	c. Tingkat Biaya Perjalanan Dinas <i>Level of Official Travel Expense</i>	:	c. E
4.	Maksud Perjalanan Dinas <i>Purpose of Travel</i>	:	Short Course Metodologi Penelitian Berstandar Internasional
5.	Alat angkutan yang dipergunakan <i>Mode of transportation</i>	:	Pesawat Udara/Bus/KA
6.	a. Tempat berangkat <i>Point of Departure</i>	:	a. Jakarta
	b. Tempat tujuan <i>Point of Destination</i>	:	b. Netherlands
7.	a. Lama Perjalanan Dinas <i>Duration of Official Travel</i>	:	a. 43 (empat puluh tiga hari) hari
	b. Tanggal berangkat <i>Date of Departure</i>	:	b. 8 Nopember 2017
	c. Tanggal harus kembali/tiba di tempat <i>End of assignment Date/Start of assignment date</i>	:	c. 20 Desember 2017
8.	Pengikut :		
	<i>Companion</i>	Nama <i>Name</i>	Tanggal Lahir <i>Date of Birth</i>
	1.	:	Keterangan <i>Note</i>
	2.	:	:
	3.	:	:
9.	Pembebanan Anggaran <i>Budget Allocation</i>	:	
	a. Instansi <i>Institution</i>	:	a. POK Ditjen Pendidikan Islam Tahun Anggaran 2017
	b. Akun <i>Code of Account</i>	:	b.
10.	Keterangan lain-lain <i>Additional Note</i>	:	

Dikeluarkan di : Jakarta
Place of Issuance
 Tanggal : 7 Nopember 2017
Date of Issuance

Pejabat Pembuat Komitmen
Authorizing Officer
 Plt. Direktur Pendidikan Tinggi Keagamaan Islam
Director of Islamic Higher Education

5. Letter of Invitation dari Leiden University



Universiteit
Leiden

Number LUCIS UIT-17-019

Date 10 oktober 2017

Subject Letter of Invitation

Telephone +31 71 527 2628

Contact person Rick Zuijderduijn

To Whom It May Concern,

In the framework of academic cooperation between the Leiden University Centre for the Study of Islam and Society (LUCIS) and the Indonesian Ministry of Religious Affairs, we officially invite the following participants to Leiden University from 6 November - 15 December, whose names are listed as follows:

1. Lien Iffah Nafatu Fina
2. Laifa Arinisa Hendarmin
3. Dony Efita Nur Ro'hmawati
4. Hasbiyallah
5. Nurul Chojimah
6. Husni Mubarrak
7. Afif Zaerofi
8. Dony Handriawan
9. Nurizal Ismail
10. Agus Samsul Bassar
11. Sri Wahyuni
12. Mohamad Agus Salim

We would kindly ask you to provide them with the necessary travel permit to enter the Schengen Area. All costs involved in this programme including library membership fees, accommodation, airfares, local transport and travel insurance will be covered by the Indonesian Ministry of Religious Affairs.

If you have any questions about LUCIS, please do not hesitate to contact us.

Yours sincerely,

Blad 2 / 2



SURAT TUGAS

Prof. Dr Petra Sijpesteijn, Director Leiden University Centre for the Study of Islam and Society (LUCIS)

Witte Singel 25 | Matthias de Vrieshof 4 | room 1.06b | Leiden | The Netherlands
+31 (0)71 527 2628 | www.lucis.leidenuniv.nl

**LUCIS | Leiden University Centre
for the Study of Islam & Society**

6. Laporan Keuangan

RINCHIAU BIJVA ANSTERDAAM, NETHERLAND

LAPORAN KEUANGAN

SHORT COURSE
METODOLOGI PENELITIAN BERSTANDAR INTERNASIONAL
DIREKTORAT PENDIDIKAN TINGGI KEAGAMAAN ISLAM
DIREKTORAT JENDERAL PENDIDIKAN ISLAM
KEMENTERIAN AGAMA RI
TAHUN 2017



MICROALGAE *Haematococcus pluvialis*
PROTECT AGAINST NAPHTHALENE INDUCED CATARACT
FORMATION IN MICE LENS

Disusun oleh:

Mohamad Agus Salim
UIN Sunan Gunung Djati Bandung



KEMENTERIAN AGAMA RI
DIREKTORAT JENDERAL PENDIDIKAN ISLAM
Jl. Lapangan Banteng Barat No. 3-4 Jakarta Telp. 021-8312344, 3811642, 3813885
JAKARTA

RINCIAN BIAYA AMSTERDAM, NETHERLAND

Tanggal : 8 November - 21 Desember 2017

No	PERINCIAN BIAYA	JUMLAH	KETERANGAN
1	Transport : Pesawat udara Jakarta ke Amsterdam PP	Rp 27.570.900	
2	Living Cost 40 hari x € 100 (Uang Harian, Penginapan, Transport Schipol-Hotel PP, dan Transport Lokal)	Rp 60.095.000	
3	Tuition Fee	Rp 34.993.750	
4	Visa Schengen	Rp 2.045.000	
5	Asuransi	Rp 1.525.200	
6	SC Kit	Rp 1.225.000	
7	Pre-departure	Rp 300.000	
8	Post-departure	Rp 700.000	
9	Penerbitan hasil Short Course & Pelaporan	Rp 1.545.150	
	Jumlah	Rp 130.000.000	

Terbilang : *Seratus tiga puluh juta rupiah*

Jakarta, 21 Desember 2017
Telah menerima jumlah uang sebesar
Rp. 130.000.000

Penerima,


Mohamad Agus Salim



**KEMENTERIAN AGAMA RI
DIREKTORAT JENDERAL PENDIDIKAN ISLAM**

Jalan Lapangan Banteng Barat No. 3-4 Jakarta Pusat

Telp. (021) 3812344, 3813885

KWITANSI

Sudah terima dari : DIREKTUR JENDERAL PENDIDIKAN ISLAM

Banyaknya uang : 

Untuk pembayaran : Biaya perjalanan dinas : Jakarta ke Amsterdam PP,
Pre-departure, Living cost, Visa, Tuition Fee, SC Kit, Asuransi, Post-departure,
Pelaporan dan Penerbitan Hasil Short Course.

Jumlah : Rp. 130.000.000,-

Jakarta, 21 Desember 2017

Penerima,


Mohamad Agus Salim

7. Laporan Karya Ilmiah Individu

No. Reg. SCMP-LN/80361-1/2017

LAPORAN INDIVIDU

SHORT COURSE
METODOLOGI PENELITIAN BERSTANDAR INTERNASIONAL
DIREKTORAT PENDIDIKAN TINGGI KEAGAMAAN ISLAM
DIREKTORAT JENDERAL PENDIDIKAN ISLAM
KEMENTERIAN AGAMA RI
TAHUN 2017



MICROALGAE *Haematococcus pluvialis*
PROTECT AGAINST NAPHTHALENE INDUCED CATARACT
FORMATION IN MICE LENS

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UIN Sunan Gunung Djati Bandung

MICROALGAE *Haematococcus pluvialis*
PROTECT AGAINST NAPHTHALENE INDUCED CATARACT
FORMATION IN MICE LENS

Mohamad Agus Salim

**Biology Department of Science & Technology Faculty of UIN Sunan Gunung Djati
Bandung of Indonesia**

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agus.salim@uinsgd.ac.id

ABSTRACT

Cataract is one of the eye pathology that can cause blindness. Oxidative stress has been identified as an initiating factor of cataract. The objective research was to investigate the ability of *Haematococcus pluvialis* biomass, a green microalgae, to prevent naphthalene-induced cataracts in mice model. Animals were divided into four treatment groups: G1 : control group, G2 : *H. pluvialis* biomass-treated group, G3 : naphthalene induced cataract group, and G4 : *H. pluvialis* biomass-treated and naphthalene induced cataract group. Animals in the G2 and G4 groups received *H. pluvialis* biomass (p.o) (2 g/kg bodyweight/day). Meanwhile, naphthalene was administrated 1 g/kg bodyweight on three day early and 2 g/kg bodyweight thereafter. Lenses were observed with slit-lump microscopy, and decreased the water soluble protein and water content in the lens were measured on day 29. Lenses in the G3 group showed mature central opacity, while some lenses in the G4 group lacked central opacity and had lower-grade cataracts. All lenses in the G1 and G2 groups were transparent. Expression of the 0.39 µg/ml of protein content and 30 % of water content was significantly decreased in the lenses in the G3 group compared with those in the G1 and G2 groups. Interestingly, these protein and water content rescued the mice lenses in the G4 group. In the G3 group lenses, the protein and water content were lower than in the control group but were normalized in the G4 group lenses. The results suggest *H. pluvialis* biomass can prevent naphthalene-induced cataract formation.

Key words : mucular disease, green microalgae, oxidative stress, antioxidant

INTRODUCTION

Cataract as one cause of blindness worldwide is characterized by progressive aggregation, fragmentation and precipitation of lens proteins (Santhoshkumar *et al.*, 2014). The eye lens should have a high level of transparency because it has the function of refracting and focusing the light onto the retina (Singh *et al.*, 2012). Lens clarity derives from the abundance of water-soluble protein content called crystallins (Nakazawa *et al.*, 2015). The lens grows throughout the lifetime of proteins and a noticeable changes occur in the function and structure of the lens crystallins (Lee *et al.*, 2010). Oxidation is one of the mechanisms that play a major role in converting soluble into insoluble crystallins (Manayi *et al.*, 2015). Oxidative stress plays an important role in the cataracts formation of the lens (Chu and Pang, 2014). Thiol group oxidation of the crystalline molecules will form a disulfide bond that eventually leads to crystalline aggregation and cataract formation (Ali *et al.*, 2014). The aggregation and precipitation of lens proteins by reactive oxygen species (ROS) is referred to as oxidative stress which leads to the formation of cataract (Farasat *et al.*, 2013). However, the development of cataract has not yet been fully elucidated.

Oxidative stress in organisms is induced by excessive free radicals, especially ROS groups including superoxide, hydroxyl, peroxy or alkoxy radicals (Kumar and Anbarasu, 2014). Free radical is a chemical species that has unpaired electrons in its outer shell so it is very reactive until it finds donor electrons and becomes neutral (Kothadia *et al.*, 2014). Free radicals are generated during metabolism involving oxygen such as photorespiration and photosynthesis which induce different diseases in human body (Morais *et al.*, 2015). The previous study revealed that accumulation of free radicals and the reduction of antioxidant compounds in aqueous humor leads to cataract formation through lens opacification (Manayi *et al.*, 2015). Oxidative damage due to oxidative stress will alter biochemically lens as damage to proteins that occur during cataract formation (Shabeer *et al.*, 2011). Treatment of naphthalene can increase oxidative stress because the formation of 1, 2 naphthoquinone (NQ) will react directly with the sulfhydryl protein group causing opacification of the eye (Patel *et al.*, 2011). The main target of NQ toxicity is actually the mitochondria of lens epithelium but cataract formation persists before the mitochondria and other subcellular organelles totally dysfunctional (Hemalatha *et al.*, 2013).

MATERIAL AND METHODS

Naphthalene Induced Cataract

The Webster mice weighing between 30-50 g were randomly divided into four groups of six each. Normal control group (group G1) received aquabidest 5ml/kg/day, group G2 received *H. pluvialis* biomass, group G3 received Naphthalene and group G4 received *H. pluvialis* biomass + naphthalene. Animals in the G2 and G4 groups received *H. pluvialis* biomass (p.o) (2 g/kg bodyweight/day). Meanwhile, naphthalene was administrated 1 g/kg bodyweight on three day early and 2 g/kg bodyweight thereafter. All the above groups have been treated for 28 days. On 29th day cataract was examined under slit lamp. On the 30th day lenses will be removed from the eyes of all the animals for estimation of lens soluble protein by Lowry's method and the lens water content.

Morphological Analysis of Cataract

Lenses were examined under the dissection microscope against a background of black grid lines (Shaber *et al.*, 2011). The degree of opacification was stratified as follows

Scores	Grading of opacification
0	Corresponds to the absence of opacification (grid lines clearly visible)
+	Corresponds to a slight degree of opacification (minimal clouding of grid lines, with grid lines still visible)
++	Corresponds to the presence of diffuse opacification dispersing almost the entire lens (moderate clouding of grid lines, with grid lines faintly visible)
+++	Corresponds to the presence of extensive thick opacification involving almost the entire lens (total clouding, with grid lines not seen at all).

Protein estimation using Folin's reagent (Lowry's method)

For the estimation of soluble protein in lens, the lens was dried on filter paper and weighed. A 20% W/V homogenate was prepared in distilled water, using tissue homogenizer. The homogenate was centrifuged ($g = 7000$) for 15 minutes and the supernatant was used for the estimation of lens soluble protein. 5 ml of alkaline solution was added to 1 ml of the supernatant obtained after centrifugation of 20% homogenate and allowed to stand for 10 minutes. 0.5 ml of diluted Folin's reagent was then added and the tube was shaken to mix the solution : After 30 minutes the absorbance against appropriate blank at 750 nm was recorded (Tiwari *et al.*, 2011).

Preparation of calibration standard curve of protein

100 ml of bovine serum albumin (100 $\mu\text{g/ml}$) was prepared and different volumes were taken in 10 test tubes. To all the tubes distilled water was added to make up the volume in each tube to 1 ml. The protein concentrations in these tubes were estimated in the same way as that of the sample. A graph was plotted between the concentration of protein and the optical density. The calibration standard plot thus obtained was used to measure the concentration of protein in each ml of the sample.

Lens water content

For the estimation of lens water content, the lens was taken out and fresh weight was estimated. Lens was then dried in an oven at 110°C till constant dry weight was obtained. The differences in the weights were used as an index of the percentage water content in that lens.

Statistical analysis

Values are presented as mean \pm SEM. Results were compared by one-way ANOVA followed by Duncan test. A value of $P < 0.05$ was considered significant.

RESULTS

Lens Morphology

In the present study, transparency of lens was considered as the parameter of highly importance in grading the lenses. All lenses from mice in Group G1 and G2 exhibited

Group 1 (G1) = without treatment (control); Group 2 (G2) = *H. pluvialis* 2 g / kg BW / day; Group 3 (G3) = naphthalene 1 g/kg body weight (BW)/ day (in corn oil); Group 4 (G4) = *H. pluvialis* 2 g / kg BW / day + naphthalene 1 g / kg BW / day

Protein and Water Content

The lens soluble protein and lens water content of naphthalene-treated animals (Group G3) showed a significant ($P < 0.001$) decrease as compared to the control group (Group G1). *H. pluvialis* biomass at the dose of 2 g/ kg/day p.o. (Group G2) showed a significant increase ($P < 0.001$) in the lens soluble protein and lens water content as compared to control group (Table 2).

Table 2: Effect of *H. pluvialis* biomass on lens soluble protein and water content in naphthalene induced cataract in mice

Group	Treatment	Soluble Protein ($\times 10^3 \mu\text{g/ml}$)	Water Content (%)
G1	Kontrol	$0,42 \pm 0,02$ (b)	$33 \pm 11,30$ (c)
G2	<i>H. pluvialis</i>	$0,48 \pm 0,04$ (a)	$59 \pm 4,67$ (a)
G3	Naphthalene	$0,39 \pm 0,01$ (c)	$30 \pm 10,54$ (c)
G4	<i>H. pluvialis</i> + Naphthalene	$0,46 \pm 0,03$ (ab)	$45 \pm 7,31$ (b)

Values are mean \pm SEM. n = 5 for each group. *Significantly different from normal control (* $P < 0.001$). #significantly different from positive control (# $P < 0.001$) (One-Way ANOVA followed by Duncan test)

DISCUSSION

Naphthalene-induced cataract has been extensively used to test potential anti-cataract drugs. Because the morphology as well as the toxic manifestations of naphthalene-induced cataract is reported to be similar to that of age-related cataract, naphthalene cataractogenesis in mice has been used as a valuable animal model to study the etiology of age related cataract in humans (Kothadia *et al.*, 2014). Ingested naphthalene is metabolized in the liver to the stable compound naphthalene- 1, 2-dihydrodiol and it is further metabolized to NQ by an enzyme dihydrodiol dehydrogenase. Which has ability quickly react with glutathione or

protein sulfhydryl groups and causes its alkylation. This lead to the formation of disulphide bridges causing precipitation of high molecular weight protein, hence opalescence in the lens. The formation of NQ is considered to be the underlying mechanism of cataract development in naphthalene fed animals (Kumari and Anbarasu, 2014). Aldose reductase is the key enzyme for the metabolism of naphthalene-1, 2-dihydrodiol in the process of naphthalene cataract development.

The result of the present study indicates *H. pluvialis* biomass treated mice prevents the cataract progression in naphthalene induced cataract models. Biochemical estimation of the lens showed that *H. pluvialis* biomass treated animals increased the level of soluble proteins of the lens and water content of the lens compared to the control group in the experimental models. This indicates *H. pluvialis* biomass provides favorable effect on anti-oxidative defense system such as increase in soluble protein level and water content level. It may be suggest that the anti-oxidative property of *H. pluvialis* biomass contributes to cataract preventive effect observed in present study.

ACKNOWLEDGMENTS

This work was supported by Grants Penelitian Dasar Integrasi Keilmuan (Fundamental Research of Integrated Science) 2016 from the Ministry of Religion, Republik Indonesia (grant number PUIK/9/2016).

REFERENCES

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8. Sertifikat Hasil Program SCMP-LN



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for the Study of Islam & Society

CERTIFICATE OF PARTICIPATION

This is to certify that

Mohamad Agus Salim

has successfully participated in the Short Course on Academic Skills
which was held from Friday 10 November until Friday 15 December 2017.

The Short Course on Academic Skills was organised by the Ministry of Religious Affairs of the Republic of Indonesia
and Leiden University Centre for the Study of Islam and Society (LUCIS).

Dr. Nico Kaptein
Board member LUCIS

Professor Petra Sijpesteijn
Director LUCIS

Dr. Petra de Bruijn
Executive secretary LUCIS

Dr. Jochem van den Boogert
Coordinator

Talencentrum
Faculteit der
Geesteswetenschappen
Universiteit Leiden



Language Centre
Faculty of Humanities
Leiden University

CERTIFICATE

This is to certify that

Mohamad Agus Salim

has completed the course

Academic English

Duration: 6 November – 12 December 2017

Mara van Schaik

Handwritten signature of Mara van Schaik.

Teacher

Mariëtte Mathee

Handwritten signature of Mariëtte Mathee.

Teacher