17 May 2010,

Marieska Verawaty
Advanced Water Management Centre (AWMC)
University of Queensland
Level 4, Gehrmann Bldg (6)
Brisbane Qld 4072
Australia

Country of Citizenship: Indonesia
Date of Birth: 22 March 1975
Passport Number: S 168089

Dear Ms. Verawaty,

On behalf of the Organising Committee of ISME13, I am pleased to invite you to participate in our symposium.

Building on the success of ISME12, the 13th International Society for Microbial Ecology Conference will be in the Washington State Convention and Trade Center, Seattle, Washington, USA from August 22 - 27, 2010. As is ISME tradition we have a vibrant scientific program planned with plenary presenters; Penny Chisholm, Jeffrey Gordon, Ove Hoegh-Guldberg, Ian Sanders, Christa Schleper, Thomas Schmidt and Warwick Vincent.

We anticipate a highly successful and exciting conference. Participants will have the opportunity to exchange ideas and expertise in an international framework, meet friends and colleagues from all over the world and listen to lectures delivered by prominent researchers.

Please note that this letter cannot be regarded as a commitment on behalf of the Organising Committee regarding funding for participation.

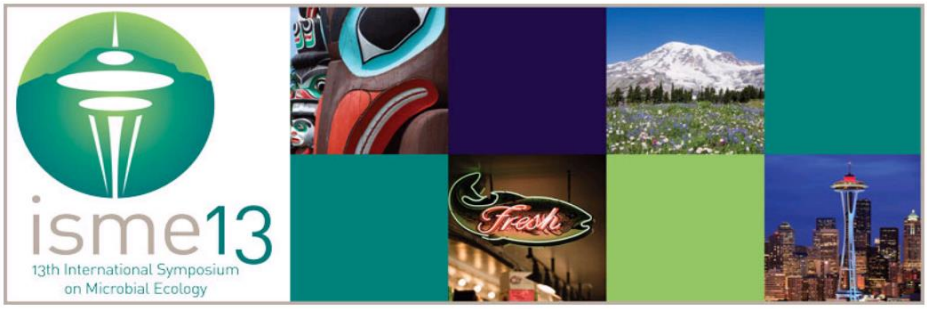
I hope you will be able to accept our invitation and participate in what promises to be a most important and stimulating meeting. We are looking forward to welcoming you to Seattle.

Yours Sincerely,

Hilary Lappin-Scott

Prof Hilary Lappin-Scott
ISME President

Acknowledgement - The 13th International Symposium on Microbial Ecology 1584841



- **Thank you for submitting your abstract for ISME 13.**
- **Your abstract will be reviewed by the Program Committee and you will be informed of their decision.**
- **Please note: all presentations will be by invitation only. When your abstract will not be accepted for oral presentation, your abstract will be considered for the poster program.**
- **Do not forget to click the 'finish' button at the bottom of this page to finalise submitting your abstract.**
- **Young Scientist authors of an abstract submitted to the symposium may apply for an ISME travel grant. Please see the ISME 13 website for further details.**

Please note your login and password details below.

Login:	**1584841**
Password:	**ONZVJ**

Corresponding author details:

Family name:	Verawaty
First name:	Marieska
Prefix title:	Ms
Institute/University:	AWMC/University of Queensland
Address line 1:	Level 4, Gehrmann Bldg (60)
City:	Brisbane
State/Province:	Queensland
Postcode/Zipcode:	4072
Country:	Australia
Telephone (office hours):	+61 (07) 336 67217
Telephone (mobile/cell)	+61 042 353 8491
Fax:	+61 (07) 336 54726
Email:	m.verawaty@awmc.uq.edu.au
Confirm email:	m.verawaty@awmc.uq.edu.au

Abstract Title (max 150 char):

USE OF FLUORESCENT MICROBEADS TO UNDERSTAND AEROBIC GRANULE FORMATION FOR ACTIVATED SLUDGE WASTEWATER TREATMENT

Abstract text (max 2000 char):

Aerobic granular sludge is an emerging technology for wastewater treatment. Aerobic granules form larger biofilm aggregates than conventional sludge floccular biofilms, settle much faster than flocs, and can maintain higher biomass levels. Thus, there are potential operational and cost saving advantages using aerobic granules. However, long start-up periods are required for the development of aerobic granules from a floccular-based system, and loss of biomass and can occur. In a recent study using an innovative seeding strategy, addition of crushed granules to a floccular sludge significantly reduced the start up period (Pijuan, submitted). However, currently there is poor understanding of how granules form and such conceptual information is important for improving start-up strategies. This study aims to determine mechanisms of granule formation and understand the accelerated process. A novel methodology was used to follow the granule formation. Granular and floccular biofilms were labelled with differently coloured fluorescent microbeads (4 μm diam); these were then added to a laboratory scale wastewater treatment reactor. Confocal laser scanning microscopy, incorporating image analysis using the daime program, was used to monitor the granule formation period. Labelled biofilms were successfully detected in samples from the activated sludge reactor over the 80-day period. In the early stage (first 20 days) there was evidence that flocs were attaching to the surface of the granules, and further analysis indicated this attachment was permanent. The results imply that the granules act as nuclei for floccular particle attachment, which accelerates the granule formation. This provides important supporting evidence for this innovative strategy and for the full-scale application of this technology. Additionally, our novel use of fluorescent microbeads to monitor biofilms for an extended period in a reactor, provides foundation methodology for studies of biofilm dynamics.

Abstract Category

06 Engineered Environments

Presentation Preference

Oral Presentation

Authors of the abstract:

Verawaty, M., AWMC/University of Queensland, Level 4, Gehrmann Bldg (60), Brisbane, Queensland, 4072, Australia (Presenting), Yes; Pijuan, M., AWMC/University of Queensland, Level 4, Gehrmann Bldg (60), Brisbane, Queensland, 4072, Australia; Yuan, Z., AWMC/University of Queensland, Level 4, Gehrmann Bldg (60), Brisbane, Queensland, 4072, Australia; Bond, P.L., AWMC/University of Queensland, Level 4, Gehrmann Bldg (60), Brisbane, Queensland, 4072, Australia