

PROCEEDING

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International Seminar on Tropical Natural Resources 2015

“Toward Sustainable Utilization of the Tropical Natural Resources for a Better Human Prosperities”

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University of Mataram
Indonesia

June 10-13, 2015

PROCEEDING

International Seminar on Tropical Natural Resources 2015

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KEYNOTE SPEAKERS

| Keynote Speaker | Name and Institution | Country |
|--------------------|---|--------------------|
| Keynote Speaker 1 | Dr. Ranvir Singh (Institute of Agriculture and Environment, Massey University) | New Zealand |
| Keynote Speaker 2 | Prof Jim Gannon (University of Montana) | USA |
| Keynote Speaker 3 | Prof. Dr. dr. Tuti Parwati (Faculty of Medicine, Univerity of Udayana) | Indonesia |
| Keynote Speaker 4 | Prof. I Made Sudarma (Faculty of Mathematic & Natural Science, University of Mataram) | Indonesia |
| Keynote Speaker 5 | Assoc. Prof. Lim Phaik Eem (Centre for Marine Biotechnology, University of Malaya) | Malaysia |
| Keynote Speaker 6 | Mr. John Higson (Ecoregion) | Indonesia |
| Keynote Speaker 7 | Dr. Simon Quigley (The University of Queensland) | Australia |
| Keynote Speaker 8 | Dr. Oni Yuliarti (School of Chemistry and Life Sciences) | Singapore |
| Keynote Speaker 9 | Dr. kato Yasuhiro (Peking University Health Science) | China |
| Keynote Speaker 10 | Dr. Novianto Bambang (Dirjen PHKA Kementrian Kehutanan, RI) | Indonesia |

CONFERENCE SCIENTIFIC PROGRAMS

Day 0 : Wednesday, 10 June 2015

| Time | Event |
|-------------|--|
| 10.00-12.00 | Registration for student from 15.00 to 18.00 WITA (Auditorium M.Yusuf Abubakar) |
| 15.00-18.00 | Registration for other participants (Auditorium M.Yusuf Abubakar) |

Day 1 : Thursday, 11 June 2015

| Time | Event |
|-------------|---|
| 07.30-8.30 | Registration (Auditorium M.Yusuf Abubakar) |
| 08.30-10.00 | Opening Ceremony (Room : Auditorium M.Yusuf Abubakar) |
| 08.30-08.45 | Welcome Dance |
| 08.45-09.00 | Report From Organizing Committee |
| 09.00-09.30 | Welcoming remarks from Rector of Mataram University |
| 09.30-10.00 | Press Conference, poster, and exhibition viewing, morning tea |
| 10.00-11.30 | Plenary session I (Water Management & Environmental Microbiology) Room : Auditorium M.Yusuf Abubakar |
| 10.00-10.30 | Keynote 1. Dr. Ranvir Singh (Institute of Agriculture and Environment, Massey University, New Zealand) |
| 10.30-11.00 | Keynote 2. Prof Jim Gannon (University of Montana, USA) |
| 11.00-11.30 | DISCUSSION |
| 11.30-13.00 | PLENARY SESSION II (Healt & Medicine) Room: Auditorium M.Yusuf Abubakar |
| 12.20-13.00 | Plenary session II (Marine Biology & fishery) Room: Auditorium M.Yusuf Abubakar |

| | | |
|-------------|--|--|
| 11.30-12.00 | Keynote 3. Prof. Dr. dr. Tuti Parwati (Faculty of Medicine, Univerity of Udayana, Indonesia) | |
| 12.00-12.30 | Keynote 4. Prof. I Made Sudarma (Faculty of Mathematic & Natural Science, University of Mataram, Indonesia) | |
| 12.30-13.00 | DISCUSSION | |
| 13.00-14.00 | House Keeping, Lunch, Poster, and exhibition viewing | |
| 14.00-15.30 | Parallel session I | |
| | Room 1 Moderator 1 : Dr. Bambang HK Topics : TRNM - Agriculture | Room 2 Moderator 2 : Dr. Oni Yuliarti Topics : Food Teech - Animal Sciene |
| 14.00-14.00 | 003-Roslinda E., et al | 001-Nalle et al |
| 14.10-14.20 | 004-Elsanti et al | 039-Sukirno |
| 14.20-14.30 | 005-Yunus A., et al | 040-Wiryawan KG., et al |
| 14.30-14.40 | 010-Sarjan M., et al | 059-Astiti LGS., et al |
| 14.40-14.50 | 015-Nikmatullah A. | 112-Asih ARS |
| 14.50-15.00 | 020-Aryana IGPM., et al | |
| 15.00-15.30 | Discussion | Discussion |
| 15.30-15.50 | Afternoon tea, poster, and exhibition viewing | |
| | Room 3 Moderator 3: Dr. Ranvir Singh Topics: Water & Energy; Indust ry & Mine | Room 4 Moderator 4: Prof Jim Gannon Topics : Health & Medicine |
| 14.00-14.00 | 007-Wimbaningrum ., et al | 037-Surya Hadi |
| 14.10-14.20 | 027-Kamaruddin A., et al | 042-Ekawanti A., et al |
| 14.20-14.30 | 073-Ekyastuti & Ekamawanti | 044-Priyambodo S., et al |
| 14.30-14.40 | 076-Setiawan H | 052-Suryani D., et al |
| 14.40-14.50 | 080-Jamiluddin & Atmaja | 060-Paryati SPY |
| 14.50-15.00 | | 066-Ambarukmi PF., et al |
| 15.00-15.30 | Discussion | Discussion |
| 15.30-15.50 | Afternoon tea, poster, and exhibition viewing | |
| | Room 5 Moderator 5: Assoc. Prof. Lim Phaik Eem Topics: Marine Biology & Fishery | Room 6 Moderator 6: Prof. M. Taufik Fauzi Topics : Biodiversity; Risk Management & Conservt |
| 14.00-14.00 | 017- Sunarpi et al | 019- Markum et al |
| 14.10-14.20 | 026- Setyowati DN | 002- Yonariza |
| 14.20-14.30 | 033- Ali M., et al | 043- Dailami M.,et al |
| 14.30-14.40 | 035- Setyono BDH., et al | 046- Defiani & Suriani |
| 14.40-14.50 | 036- Zaenuddin M., et al | 055- Tallei TE., et al |
| 14.50-15.00 | 065- Ridwanuddin A., et al | 091- Irmayanti L et al |
| 15.00-15.30 | Discussion | Discussion |
| 15.30-15.50 | Afternoon tea, poster, and exhibition viewing | |

| | | |
|-------------|--|---|
| 15.50-17.20 | Parrallel session II | |
| | Room 1 Moderator : Dr. Herman Suheri Topics : TRNM- Agriculture | Room 2 Moderator 2 : Dr. Dahlanudin Topics : Food Tech Animal Science |
| 15.50-16.00 | 021- Jaya IKD & Nurrachman | 023- Nawangsih EN., et al |
| 16.00-16.10 | 022- Kusumo BH., et al | 050- Handayani BR., et al |
| 16.10-16.20 | 024- Susilowati LE., et al | 071- Zainuri et al |
| 16.20-16.30 | 031- Sudantha IM & Suwardji | 108- Ansar et al |
| 16.30-16.40 | 068- Amien S., et al | 053- Muktasam et al |
| 16.40-16.50 | 048- Sudharmawan AAK & Aryana IGMP | 127-Priyono J. |
| 16.50-17.20 | Discussion | Discussion |
| | Room 3 Moderator 3: Prof. Erri Noviar M. Topics: Water & Energy; Industry & Mine | Room 4 Moderator 4: Prof. Surya Hadi Topics : Healt & Medicine |
| 15.50-16.00 | 083- Saidy AR., et al | 067- Priyadi SP |
| 16.00-16.10 | 094- Dini Iflakkhah & Edianti | 070- Paryati SP |
| 16.10-16.20 | 102- Saloko S., et al | 103- Khoeri MM., et al |
| 16.20-16.30 | 107- Faiza R & Setiawan H. | 104- Muktiarti D., et al |
| 16.30-16.40 | 110- Sabani R & Amuddin | 120- Suharna J |
| 16.40-16.50 | 083- suaidy AR., et al | 136- Febrianto YH., et al |
| 16.50-17.20 | Discussion | Discussion |
| | Room 5 Moderator 5 : Dr. Imam Bachtiar Topics: Marine Biology & Fishery | Room 6 Moderator 6 : Dr. Sitti Latifah Topics : Biodiversity; Risk Management & Conservtion |
| 15.50-16.00 | 025- Fathurrahman et al | 092- Shabrina H. & Siregar UJ |
| 16.00-16.10 | 034- Ali M., et al | 093- Flowrensia L., et al |
| 16.10-16.20 | 074- Agamawan | 105- Zulia Z., et al |
| 16.20-16.30 | 078- Mulyani S., et al | 062- Siahaya ME., et al |
| 16.30-16.40 | 101- Nurhidayati et al | 089- Lestyaningrum, R.A., et al |
| 16.40-16.50 | 111- Samuel PD., et al | 096- Astuti SP. |
| 16.50-17.20 | Discussion | Discussion |

Day 2 : Friday 12 June 2015

| Time | Event |
|-------------|--|
| 08.00-10.15 | Plenary session III : Water Management & Environmental Microbiology (Room : Auditorium M.Yusuf Abubakar) |
| 08.00-08.30 | Keynote 5. Assoc. Prof. Lim Phaik Eem (Centre For Marine Biotechnology, University Of Malaya, Malaysia) |
| 08.30-09.00 | Keynote 6. Mr. John Higson (Ecoregion, Indonesia) |
| 09.00-09.30 | Keynote 7. Dr. Simon Quigley (The University of Queensland, Australia) |
| 09.30-10.15 | DISCUSSION |
| 10.15-10.30 | Afternoon tea, poster, and exhibition viewing |

| | | |
|--------------|--|--|
| 10.30-12.00 | PLENARY SESSION IV : Food Technology & Health (Room : Auditorium M.Yusuf Abubakar) | |
| 10.30-11.00 | Keynote 8. Dr. Oni Yuliarti (School of Chemistry and Life Sciences. Singapore) | |
| 11.00-10.30 | Keynote 9. Dr. kato Yasihiro (Peking University Health Science, China) | |
| 11.30-12.00 | Discussion | |
| 12.00-14.00 | Friday praying, Lunch, Poster, and exhibition viewing | |
| 14.00-15.00 | PLENARY SESSION V : Food Technology & Animal Science (Room : Auditorium M.Yusuf Abubakar) | |
| 14.00-14.20 | Keynote 10. Dr. Novianto Bambang (Dirjen PHKA Kementrian Kehutanan, RI, Indonesia) | |
| 14.20-14.40 | Keynote 11. Dirjen Sumber Daya Alam | |
| 14.40-15.00 | Discussion | |
| 15.00-15.15 | Afternoon tea, Poster, and exhibition viewing | |
| 15.15- 16.25 | Parallel session III | |
| | Roan 1 Moderator 1 : Prof. IKD.Jaya Topics : TRNM-Agriculture | Roan 2 Moderator 2 : Dr. Simon Quigley |
| 15.15-15.25 | 049- Wangiyana W., et al | 079- Faizal MI., et al |
| 15.25-15.35 | 057- Niswati A., et al | 081- Naitio E., et al |
| 15.35- 15.45 | 032- Sukartono & Sudantha IM | 084- Priatmadi BJ., et al |
| 15.45- 15.55 | 069- Puromo et al | 085- Sulistyadi FW., et al |
| 15.55- 16.05 | 095- Yanuwadi B | 088- Alfian et al |
| 16.05- 16.15 | 008- Mahrup et al | 134- Pitojo B., et al |
| 16.15- 16.25 | Discussion | Discussion |
| 16.25- 17.00 | Closing Ceremony : Auditorium M.Yusuf Abubakar, Best Presenter and Best Poster Presentation winners | Closing Ceremony : Auditorium M.Yusuf Abubakar, Best Presenter and Best Poster Presentation winners |
| | Room 3 Moderator 3 : Aluh Nikmatullah,. Ph.D | Room 4 Moderator 4 : Prof I Made Sudarma |
| 15.15-15.25 | 090- Ansiska P., et al | 122- Afiani L., et al |
| 15.25- 15.35 | 097- Tejowulan S., et al | 125- Sabrina Y |
| 15.35- 15.45 | 123- Mulyaningsih T., et al | 056- Laksmiwati D & Hakim A. |
| 15.45-15.55 | 115- Mulyati et al | 135- Pengestiniingsih TW., et al |
| 15.55-16.05 | 133- Wijayanto H., et al | 137- Kusindarta DL., et al |
| 16.05- 16.15 | | |
| 16.15- 16.25 | Discussion | DISCUSSION |
| 16.25- 17.00 | Closing Ceremony : Auditorium M.Yusuf Abubakar, Best Presenter and Best Poster Presentation winners | Closing Ceremony : Auditorium M.Yusuf Abubakar, Best Presenter and Best Poster Presentation winners |
| | Room 5 STUDEN CHAPTER Moderator : Dr. Satrijo Saloko | Room 6 Biodesity, Risk Manag. & Conservation Moderator : Dr. Bambang Suryobroto |
| 15.15-15.25 | | 063- Irawati W., et al |

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| 15.25- 15.35 | | 064- Yadnya SM. |
| 15.35- 15.45 | | 072- Latifah S & Syah T. |
| 15.45-15.55 | | 077- Herawati L., et al |
| 15.55- 16.05 | | 100- Hadi L, et al |
| 16.05- 16.15 | | 058- Astiani D., et al |
| 16.15-16.25 | Discussion | Discussion |
| 16.25- 17.00 | Closing Ceremony : Auditorium M.Yusuf Abubakar, Best Presenter and Best Poster Presentation winners | Closing Ceremony : Auditorium M.Yusuf Abubakar, Best Presenter and Best Poster Presentation winners |

Day 3 : Saturday, 13 June 2015
Field Trip and Lombok Tour

OPENING SPEECH – RECTOR, UNIVERSITY OF MATARAM
International Seminar on the Tropical Natural Resources 2015

Respected guests,
Keynote speakers,
Seminar participants,
and all other participants.

On behalf of all staff of the University of Mataram, I welcome you all to Lombok, a beautiful island in West Nusa Tenggara Province, where the University of Mataram is located. Lombok is known for its natural and cultural diversity where you can enjoy traditional cuisines, beaches, waterfall, mountain, traditional villages and handicraft of many ethnics including Sasak, Samawa, Mbojo, Balinese, Chinese, Arabic, and many others.

As the Rector of the University of Mataram, it is great honour for me to address the opening of “the International Seminar on the Tropical Natural Resources” here at the University of Mataram, which will be held from 10th to 13th June 2015, with a theme “toward sustainable utilization of the tropical natural resources for better human prosperity”. The main aim of this seminar is to gather scientist from all over the world to share their ideas, knowledge and experiences and to build network for possible future collaboration.

As we are aware that sharing knowledge and experiences from speakers are extremely valuable in a seminar, therefor I would like to express my high appreciation, first, to the keynote speakers from overseas (USA, Australia, New Zealand, China, Singapore, Malaysia, the Philippines) and from Indonesia for their willingness to come to Lombok to share their acknowledged works. Your efforts and contribution to this seminar are absolutely valuable. Second, my high appreciation also goes to the national speakers and all other participants, including the speakers from University of Mataram and local universities in West Nusa Tenggara Province,

your participation in this seminar nor only will give incredible share of ideas, skill and knowledge that you have, but also will improve the academic of environment that we are developing in this university. I hope this seminar will be a good forum, not only for communicating and sharing ideas, knowledge and experiences, but also for building networking for future collaboration.

I would like to take this opportunity to express my appreciation to the sponsors (Bank Mandiri, Bank BNI, Bank BRI, Bank NTB, Bank Bukopin), which have given some contribution to this seminar. Last but not least, I would like to thank the steering and organizing committee as well as all other supporters and participants, without their effort, commitment and hard work, this seminar will not run well.

Finally, I wish you most successful seminar, enjoy Lombok Island and hope to see you again in other forum here at the University of Mataram.

Prof. Ir. Sunarpi, Ph.D

Rector of the University of Mataram

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Exploration of *Eucheuma striatum* Cultivation Using Off-Bottom Method in Marine Area of Kaung Island, Buer Sub-district, Sumbawa Regency

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Abstract

The objective of this study is to address the suitability of *Eucheuma striatum* cultivation using off-bottom method in marine area of Kaung Island, Buer Sub-district, Sumbawa Regency. This study was conducted from August to September 2014 in marine area of Kaung Island, Buer Sub-district, Sumbawa Regency. The method used for the research was experimental research by creating a demonstration plot of *Eucheuma striatum* cultivation using off-bottom method with a size of 10 m x 10 m. Planting distance between the ropes was set to 1 m, whereas planting distance between *Eucheuma striatum* clumps on a rope was 20 cm. The cultivation took place until *Eucheuma striatum* reached its harvest age which was 36 days. The result of this study shows an increase in *Eucheuma striatum* weight which is 10.77 gr in seven days or from the first day to the seventh day of cultivation. However, from the next day until the day of harvest or the 36th day, there is a decrease in weight caused by falling out thallus. This falling out thallus was caused by large movement of water and water depth that was more than 2 m when water receded. From this result, it can be concluded that off-bottom method cannot be applied in marine area of Kaung Island because of the inappropriateness of water physical condition.

Keywords: *off-bottom, weight, falling out thallus, cultivated, exploration*

1. Introduction

Development of seaweed-based economy has faced a problem regarding quality and quantity of production continuity. This is caused by the lack of seaweed farmers (especially in Sumbawa Island), limited potential area used (56%), cultivation technical problem, cultivation which depends on environmental and climate conditions, and the lack of seaweed seed availability. Cultivation technology applied currently by seaweed farmers is vulnerable to extreme weather conditions such as strong wind, strong current and wave, and increasing temperature (Nurhayati, 2009). Strong wind and La Nina on 2010 and 2011 have become one of causes of the

low seaweed production in Sumbawa Island (Pemda NTB, 2011). This is because the strong wind and strong current cause the loss of seaweed that decreases seaweed productivity, even causes crop failure, and the damage of and runoff of cultivation facilities (Sunarpi et al., 2009, 2010). Therefore, the extension of seaweed cultivation supported by production facility (including seed), and mastery of cultivation technology suitable for location and growing season, together with appropriate understanding about the water environmental condition, are strategic steps to increase the economy of seaweed-based community in NTB. This technology belongs to Universitas Mataram and has been being applied in some locations in NTB including Pengantap, Ekas Bay, Kertasari (Sunarpi et al., 2009, 2010; Nikmatullah, 2012).

The extension of seaweed cultivation can also be done by optimizing marine area for seaweed cultivation. Intertidal zone has not been being utilized for aquaculture activity even though this kind of area can be used for seaweed cultivation using off-bottom method. This also happens in intertidal zone in marine area of Kaung Island, Sumbawa. The objective of this study is to address the suitability of *Eucheuma striatum* cultivation using off-bottom method in marine area of Kaung Island, Buer Sub-district, Sumbawa Regency.

2. Methodology

This study was conducted from August to September 2014 in marine area of Kaung Island, Buer Sub-district, Sumbawa Regency. Method used for this study was experimental research by creating a demonstration plot for *Eucheuma striatum* cultivation using off-bottom method with a size of 10 m x 10 m. Planting distance between the ropes was set to 1 m, whereas planting distance between *Eucheuma striatum* clumps on a rope was 20 cm. The cultivation took place until *Eucheuma striatum* reached its harvest age which was 36 days.

The increase of weight of *Eucheuma striatum* was measured every 7 days. Twelve *Eucheuma striatum* clumps from each rope were taken to be weighed. Each clump was weighed and its weight was recorded. Total sample weight taken from one rope was then averaged. *Eucheuma striatum* that had been weighed was then marked and replanted, and this replanted *Eucheuma striatum* was then reweighed.

The data of *Eucheuma striatum* weight increase were calculated using the following formula:

$$\text{Increase of weight} = \text{weight on } t \text{ (time)} - \text{initial weight}$$

3. Result and Discussion

The result of this study shows an increase in *Eucheuma striatum* weight which is 10.77 gram in seven days or from the first day to the seventh day of cultivation. However, since the fourteenth day of cultivation, the weight starts to decrease that is 10.63 gr due to falling out thallus. From the next day until the day of harvest or the 36th day, there is a dramatic decrease in weight that is 93.26 gram as shown in table 1. The falling out thallus was caused by large movement of water and water depth that was more than 2 m when water receded.

Table 1. : Growth of *Eucheuma striatum* from August to September Cultivated using Off-bottom Method for 36 Days in Marine area of Kaung Island

| Parameter | Day | | | | | |
|--|-------|----------|---------|---------|---------|---------|
| | 0 | 7 | 14 | 21 | 28 | 36 |
| Weight (g) | 100±0 | 110±2.12 | 89±3,23 | 54±3.81 | 37±3,89 | 7±2,36 |
| Increase of weight starting from day 0 (g) | 0 | 10.77 | -10.63 | -45.872 | -63.047 | -93.256 |

Eucheuma striatum cultivated using off-bottom method still has an increase in weight. This is shown by thallus candidate that has nodules on the surface of the thallus. However, falling out thallus caused by relatively large water movement leads to decreasing weight of *Eucheuma striatum*. In fact, the intertidal zone in marine area of Kaung Island is still 2 meters underwater during the ebb. This condition is actually good for the growth of *Eucheuma striatum*, but it will be a problem for the construction of off-bottom and its maintenance. Therefore, the cultivation of *Eucheuma striatum* will not be economic if its maintenance still uses a boat. It is expected that the application of off-bottom method can reduce production cost

because there is no need to use boat and fuel for the boat. The location of seaweed cultivation on off-bottom is expected to be reached by foot.

4. Conclusions and Implications

According to the result of this study, it can be concluded that off-bottom method cannot be applied in marine area of Kaung Island because of the inappropriateness of water physical condition.

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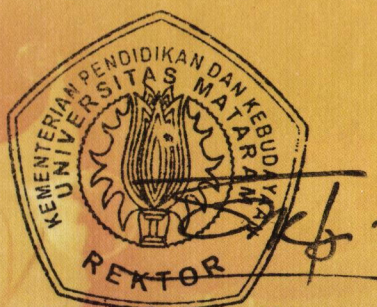
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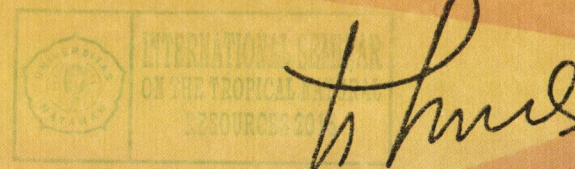
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Mataram, 12 June 2015



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