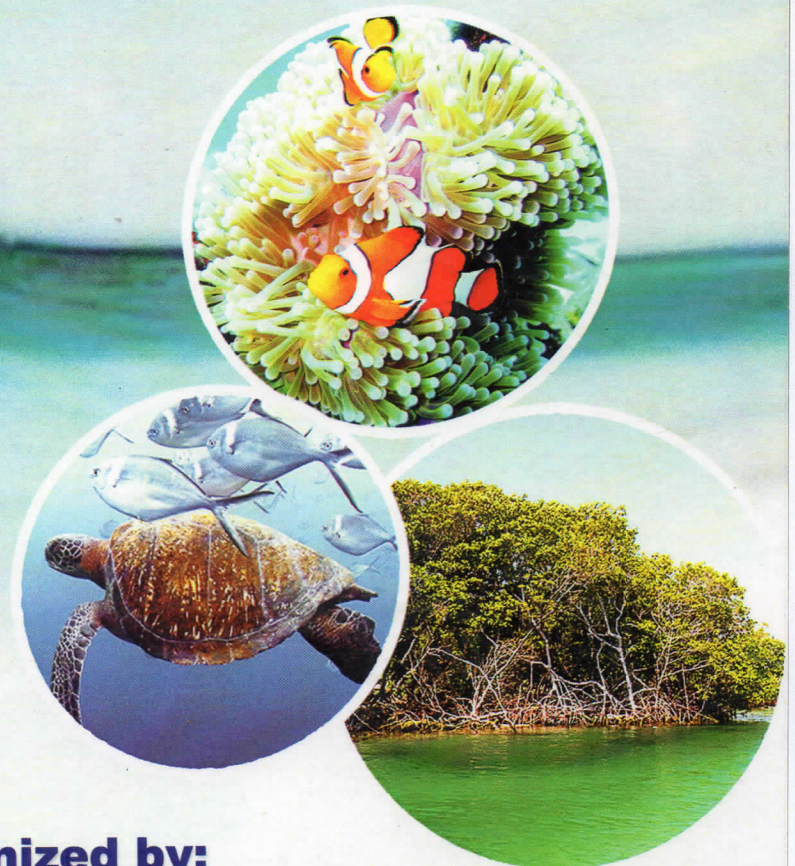


Proceedings International Seminar

*“From Ocean for Food Security,
Energy, and Sustainable Resources
and Environment”*

*November 18, 2009
Surabaya - Indonesia*



Organized by:
Fisheries and Marine Faculty - Airlangga University
and
Research Center for Marine and Fisheries Socio Economics,
Agency for Marine and Fisheries Research,
Ministry of Marine Affairs and Fisheries

ISBN: 978-602-96671-0-3

**PROCEEDINGS
INTERNATIONAL SEMINAR**

**From Ocean for Food Security, Energy, and
Sustainable Resources and Environment**

**at Airlangga University
Surabaya, 18 November 2009**

Reviewers:

Sukoso
Murwantoko
Triyanto
Agung Sudaryanto
Mohammad Yunus
M. Pujoyuwono
Sayed Mohd Zain Hasan

Editors:

Akhmad Taufiq Mukti
A. Shofy Mubarak
Gunanti Mahasri

Cover Design:

Pristita Widyastuti

Produced by

Fisheries and Marine Faculty
Airlangga University
Campus C Unair, Jl. Mulyorejo Surabaya 60115
Tel. (62-31) 5911451
Fax. (62-31) 5911451
Website: www.fpk.unair.ac.id
E-mail : fpk@unair.ac.id

PREFACE

In the name of Allaah the Most Gracious and Merciful. We would like to express our deep gratitude to our God, we could finish Proceedings of International Seminar. This proceedings was set of articles or papers that has been presented at International Seminar on *From Ocean for Food Security, Energy, and Sustainable Resources and Environment*. This seminar is organized by cooperation between Fisheries and Marine Faculty, Airlangga University, Surabaya and Research Center for Marine and Fisheries Socio Economics, Agency for Marine and Fisheries Research, Ministry of Marine Affairs and Fisheries, Jakarta, and Agrotechnology and Food Science Faculty, Universiti Malaysia Terengganu, Malaysia. The seminar is attended by researchers, lecturers, students of undergraduate, master and doctoral degrees, and also by government official. The papers cover broad topics about food production technology, product value improvement, resources and environment biophysics, alternative energy and environment biophysics, and socio-economic.

We would like to express our sincere thanks to Rector and Vice Rector of Airlangga University, Vice Counsellor and Dean of Agrotechnology and Food Science Faculty of Universiti Malaysia Terengganu, Head of Research Center for Marine and Fisheries Socio Economics, Dean of Fisheries and Marine Faculty, Airlangga University, keynote speakers: Prof. Dr. Gunawan Sumodiningrat from Gadjah Mada University, Prof. Dr. Sakri Ibrahim from Universiti Malaysia Terengganu, and Prof. Hassan Hj. Mohd Daud, DVM., Ph.D. from Universiti Putra Malaysia, moderators, presenters, participants, and colleague for supporting and kind help in the seminar. We also wish to thank to all sponsorships: Vice President of PT. CP Prima, Director of PT. Sufie Bahari Lines, Head of Fisheries and Marine Office, Regency of Tuban, Head of Fisheries and Marine Office, Regency of Pasuruan, General Manager of PT. Sanbe Farma, Director of PT. Petrokimia Gresik, Director of CV. Antika, Coordinator of Education Fish Pond, Fisheries and Marine Faculty, Airlangga University, and Director of PT. SIER for good contributions and partnership in the seminar. Finally, we would like to express our sincere thanks to the Steering Committee and Organizing Committee either staff and students from Faculty of Fisheries and Marine, University of Airlangga or staff from Research Center for Marine and Fisheries Socio Economics, Agency for Marine and Fisheries Research, Ministry of Marine Affairs and Fisheries, Reviewer: Prof. Ir. Sukoso, M.Sc., Ph.D from Fisheries and Marine Science Faculty, Brawijaya University, Ir. Murwantoko, M.Sc., Ph.D. and Ir. Triyanto, M.Si., Ph.D. from Department of Fisheries, Agriculture Faculty, Gadjah Mada University, Ir. Agung Sudaryanto, M.Sc., Ph.D. from Fisheries and Marine Science Faculty, Diponegoro University, Mohammad Yunus, DVM., M.Kes., Ph.D. from Department of Parasitology, Veterinary Medicine Faculty, Airlangga University, Ir. H. M. Pujoyuwono, M.Sc. from Research Center for Marine and Fisheries Socio Economics, Agency for Marine and Fisheries Research, Ministry of Marine Affairs and Fisheries, and Prof. Sayed Mohd Zain Hasan, Ph.D. from Agrotechnology and Food Science Faculty, Universiti Malaysia Terengganu.

Surabaya, 1 December 2009

Editors

CONTENTS

	Page
FOOD PRODUCTION TECHNOLOGY	
FEEDING OF <i>Artemia</i> WITH DIFFERENT DOSES TO GROWTH AND SURVIVAL RATE OF TIGER PRAWN (<i>Penaeus monodon</i>) POST LARVAE Heppi Iromo, Azis, and Fitriana	3
INFLUENCE OF STORAGE TIME AND LIQUID CONCENTRATION OF BAUNG FISH (<i>Hemibagrus nemurus</i>) SEMEN ON SPERMATOOZOA MOTILITY Heppi Iromo	7
SEROLOGICAL CHARACTERIZATION OF <i>Streptococcus iniae</i> REVEALED BY WESTERN BLOTTING Ating Yuniarti	11
QUALITY CHANGES OF FRESH AND TUNA STEAK DURING CHILLED STORAGE Indah Widiastuti, Sumpeno Putro, Dedi Fardiaz, and Wini Trilaksana	17
<i>Penaeus monodon</i> (Fabricius) PRODUCTION OF SEMI-INTENSIVE PONDS IN NORTH COAST OF BALI ISLAND, INDONESIA Anik Martinah Hariati and Dewa Gede Raka Wiadnya	23
THE STUDY OF THREE SPECIES OF OYSTER STOMACH CONTENT Diana Arfiati	31
HISTOLOGY OF <i>Ichthyophthirius multifiliis</i> INFECTED THE GILLS OF MAHSEER (<i>Tor douronensis</i>) Uni Purwaningsih, Angela Mariana Lusiasuti, and Jojo Subagja	35
SEQUENCE ANALYSIS OF <i>Streptococcus agalactiae</i> : A PATHOGEN CAUSING STREPTOCOCCOSIS IN TILAPIA (<i>Oreochromis niloticus</i>) Angela Mariana Lusiasuti, Taukhid, Eny Kusriani, and Wartono Hadie	37
STUDY OF CAPTURE BY MINI TRAWL IN TARAKAN WATERS Asbar Laga, Muh. Firdaus, and Sulastris Novita	43
DETECTION OF FATTY ACID COMPOSITION FROM <i>Enteromorpha compressa</i> AND <i>Monostruma nitidum</i> Mochammad Amin Alamsjah	49
SURVIVAL RATE (SR) OF THE TIGER SHRIMP (<i>Penaeus monodon</i> Fab.) WHICH IMMUNIZED WITH WHOLE PROTEIN OF <i>Zoothamnium penaei</i> AS THE ZOOTHAMNIOSIS AGENT Gunanti Mahasri	53
HATCHERY AND CULTURE DEVELOPMENTS OF CATFISH (<i>Clarias gariepinus</i>) BY INDUCED SPAWNING TECHNOLOGY FOR ECONOMIC UTILIZATION OF REGION SOCIETY AT PACITAN REGENCY, EAST JAVA Akhmad Taufiq Mukti, Woro Hastuti Satyantini, Muhammad Arief, Adriana Monica Sahidu, and Sapto Andriyono	57
THE INFLUENCE OF NATURAL AND ARTIFICIAL FOOD COMBINATION ON THE GROWTH OF GOBY (<i>Oxyeleotris marmorata</i>) JUVENILES Muhammad Arief	63
LAND CHARACTERISTIC ANALYSIS FOR TIGER SHRIMP (<i>Penaeus monodon</i> Fab.) CULTURE ON THE NORTH AND SOUTH EAST JAVA COASTAL Laksmi Sulmartiwi	67
PURIFICATION S-LAYER SPECIFIC PROTEIN OF <i>Aeromonas hydrophila</i> CAUSED ULCER DISEASE ON GOLDFISH (<i>Cyprinus carpio</i> Linn.) USING ELECTRO-ELUTION TECHNIQUE M.Gandul Atik Yuliani, Retno Sri Wahjuni, Retno Bijanti, and E. Bimo Aksono Herupradoto	69

COMPARISON OF FIVE DNA EXTRACTION TECHNIQUES FOR <i>Artemisia capillaries</i> (WORMWOOD)	
Sayed M.Zain Hasan and Mohammed Shafie B. Shafei	71
VARIABILITY OF <i>Ficus deltoidea</i> Jack (MAS COTEK) IN PENINSULAR MALAYSIA	
Sayed M. Zain Hasan and Nor Asiah Awang	75
SPARGANOSIS IN <i>Rana</i> spp.: A CASE REPORT	
R. Heru Prasetyo and Erma Safitri	81
THE POTENCY OF FERMENTED RICE BRAN AS AN ALTERNATIVE LIVESTOCK FEED STUFF	
Widya Paramita Lokapimasari	83
THE ISOLATION OF ANTIBIOTICS PRODUCED <i>Streptomyces</i> sp. FROM SOIL AT EAST JAVA	
Tutik Juniastuti and Rochmah Kumijasanti	85
 PRODUCT VALUE IMPROVEMENT	
MACROSCOPIC CHANGING IN MICE (<i>Mus musculus</i>) IS CAUSED BY EXPOSED REPEATEDLY NILE FISH (<i>Oreochromis niloticus</i>) CONTAINING FORMALIN	
Hartati Kartikaningsih and Kartini Zaelani	91
ANALYSIS OF VOLUME AND ERYTHROCYTE CELL NUMBER OF TETRAPLOIDIZATION-TREATED NILE (<i>Oreochromis niloticus</i>)	
Indah Sylviana Dewi, Akhmad Taufiq Mukti, and A. Shofy Mubarak	97
PROCESS DEVELOPMENT OF PRODUCING SOYMILK POWDER BY USING FLUIDIZED BED DRYING INERT PARTICLES	
Suherman, Istadi, A. Purbasari, H. Vistanty, and Harianingsih	101
KINETIC STUDY OF DRYING CARRAGEENAN WITH AIR DEHUMIDIFIED BY ZEOLITE	
A. Prasetyaningrum, N.Rokhati, and M. Djaeni	107
ANTIMICROBIAL PRESERVATIVE EFFICACY TESTING OF SODIUM BENZOATE TO BACTERIA CONTAMINATED BREM	
Alasen Sembiring	113
THE EFFECT OF <i>Vibrio alginolyticus</i> BACTERIA IMMUNOSTIMULANT ON CELLULER IMMUNE RESPONSES OF THE BLACK TIGER SHRIMP (<i>Penaeus monodon</i>) WITH <i>Vibrio harveyi</i> BACTERIA EXPOSED	
Sumisdiyanto and Maftuch	117
THE INFLUENCES OF HARVEST TIME AND DEHYDRATION METHOD ON THE PHYSICO-CHEMIST PROFILE OF CARRAGEEN RESULTED FROM <i>Eucheuma cottonii</i>	
R.B.D. Sormin	121
THE INFLUENCES OF FERMENTED <i>Ipome</i> sp. ON CONTENT OF CRUDE PROTEIN AND CRUDE FIBER AS ALTERNATIVE FEED STUFFS	
Adriana Monica Sahidu	125
 RESOURCES AND ENVIRONMENT BIOPHYSICS	
SPECIATION OF HEAVY METALS (Cr, Cu, Pb, AND Zn) IN THE ESTUARINE SEDIMENTS AND ITS CONTENT ON BENTHIC INVERTEBRATES OF JAKARTA BAY, INDONESIA	
Noverita Dian Takarina	129
APPLICATION OF GEOGRAPHIC INFORMATION SYSTEMS (GIS) TO DETERMINE THE STATUS OF MANGROVE ECOSYSTEMS: A CASE STUDY CONDUCTED AT MODUNG REGION MADURA	
Zainul Hidayah	135
REPRODUCTIVE PERFORMANCE OF <i>Anodontia philippiana</i> AFTER THE OIL SPILL IN GUIMARAS, PHILIPPINE	
Insafitri	143

BREAKDOWN OF <i>Avicennia marina</i> AND <i>Sonneratia caseolaris</i> LEAF LITTER IN MANGROVE AREA OF TANJUNG API-API, SOUTH SUMATERA T. Zia Ulqodry, Dietriech G. Bengen, and Richardus F. Kaswadji	149
PRELIMINARY STUDY OF NATURAL HABITAT AND WATER QUALITY AS LIVING GROUND OF SPINY EEL (<i>Macrogathus aculeatus</i>) AT BENGAWAN SOLO RIVER BASIN, LAMONGAN Akhmad Taufiq Mukti, Muhammad Arief, Woro Hastuti Satyantini, Supto Andriyono, and A. Shofy Mubarak	157
ANALYSIS OF LAND SUITABILITY ON KARIMUNJAWA MARINE NATIONAL PARK FOR THE ALLOTMENT OF MARINE CULTURE, MANGROVE CONSERVATION, AND TOURISM Muh. Yusuf	161
GEOGRAPHIC INFORMATION SYSTEM APPLICATION FOR DETERMINING AREA SUITABILITY FOR REGIONAL AQUACULTURE USING FLOATING NET CAGE SYSTEM AT PELABUHAN RATU BAY Yulius, Prama Hartami, and Aida Heriati	177
POPULATION AND DISTRIBUTION STRUCTURE OF KAPAH COCKLE (<i>Meretrix meretrix</i>) IN AROUND MANGROVE AREA, AMAL LAMA BEACH, TARAKAN CITY, EAST KALIMANTAN Dhimas Wiharyanto	183
DEVELOPMENT OF TECHNOLOGY TO DETECT CRITICAL DISSOLVED OXYGEN CONCENTRATION IN WATER BASED ON CORRELATION BETWEEN DISSOLVED OXYGEN CONCENTRATION WITH COLOUR SCORE OF <i>Daphnia</i> spp. Diah Ayu Satyari Utami and A. Shofy Mubarak	189
NITROGEN AND PHOSPHOROUS DISTRIBUTION IN MALAYSIAN WATER OF THE STRAITS OF MALACCA Yii-Siang Hii, Ah Theem Law, Abdul Rashid M.K., and Fatimah M.Y.	195
CHEMICAL NUTRITION AND AMINO ACID CONTENT OF ISOLATED MARINE YEAST Sukoso and Nurul Khaqiqi	199
SPATIAL MODELING FOR SEA WEED CULTURE SITE SELECTION BASED ON ECOSYSTEM PARAMETERS AT BUNYU ISLAND, EAST BORNEO INDONESIA Jimmy Cahyadi	201
 ALTERNATIVE ENERGY AND ENVIRONMENT BIOPHYSICS	
BIODIESEL PRODUCTION PROCESS FROM RUBBER SEED OIL BY USING ESTERIFICATION PROCESS Widayat, Suherman, and Berkah Fajar Tamtomo Kiono	211
DEVELOPMENT OF A NOVEL ENERGY-EFFICIENT ADSORPTION DRYER USING ACTIVATED NATURAL ZEOLITE FOR CARRAGEENAN PRODUCTION M. Djaeni, A. Prasetyaningrum, and N. Rokhati	217
DYNAMIC MODEL OF FLOOD AND TIDAL INUNDATION VULNERABILITY IN LOWLYING AREA, CASE STUDY AT SEMARANG Ifan Ridlo Suhelmi	223
DEVELOPMENT OF HYDRODINAMIC AND WATER QUALITY NUMERICAL MODEL FOR THE PREDICTION OF DISSOLVED IRON (Fe) CONCENTRATION ON TIDAL SWAMP RECLAMATION CHANNEL Rony Riduan	231

SOCIO-ECONOMIC

SOCIO-ECONOMIC CONDITION OF SMALL SCALE MARINE CAPTURE FISHERIES HOUSEHOLD: CASE STUDY IN WONOKERTO VILLAGE, PEKALONGAN, CENTRAL JAVA Risna Yusuf and Lindawati	239
ECONOMIC VALUATION OF THE FLOODPLAIN RESOURCE OF SOUTH SUMATERA, INDONESIA Fatriyandi Nur Priatna, Cornelia Mirwantini Witomo, Irwan Muliawan, Elly Reswati, Rizki Aprilian, and Sonny Koeshendrajana	245
LAW POLICY FISHERY OF TRAWL IN EAST KALIMANTAN OF NORTH AREA Wwin Dwi Ratna Febriyanti	249
THE WELFARE IMPACTS OF FISHERIES' GROWTH IN INDONESIA Ni Made Sukartini and Tikkirino Kumiawan	253
THE ECONOMIC PUZZLE IN PATRON-CLIENT RELATIONSHIP: IS THE FISHERMAN REALLY "HAPPY" IN TRAP OF GREEDY LENDER (TOKE)? Sastrawidjaja and Tajerin	261
THE ROLE OF POLITICAL ECONOMIC OF INTEGRATED MARINE AND COASTAL RESOURCES MANAGEMENT ON SUSTAINABLE DEVELOPMENT Tajerin	267
THE ROLE OF SHRIMP CAPTURE AND AQUACULTURE BUSINESS IN INDONESIAN ECONOMY: INPUT OUTPUT APPROACH Risna Yusuf and Tajerin	269
PREDICTION OF SUSTAINABILITY STRATEGY IN DEALING WITH CLIMATE CHANGE (CASE STUDY: FISHERIES'S MAIN ACTOR IN KAMAL MUARA AND KARAWANG) Hertria Maharani Putri and Bayu Vita Indah Yanti	273
MEASURING WELFARE LEVEL OF FISHERMEN HOUSEHOLDS USING NTN METHODS (CASE STUDY KAMAL MUARA) Tikkyrino Kumiawan and Armen Zulham	281
POVERTY AND HUMAN RESOURCES QUALITY AT THE COASTAL COMMUNITY (CASE STUDY AT THE COASTAL COMMUNITY IN WEST PASAMAN REGENCY, WEST SUMATRA) Alfian Zein	289
THE IMPACTS OF CLIMATE CHANGE ON THE INCOME OF THE MAIN ACTORS IN FISHERIES SECTORS Zahri Nasution, Estu Sri Luhur, and Tikkyrino Kurniawan	299
INSTITUTIONAL EMPOWERMENT OF GOURAMY AQUACULTURE BY PRASASTI MINA (CASE STUDY IN DISTRICT OF PURBALINGGA, CENTRAL JAVA) Mei Dwi Erlina and Nensyana Shafitri	307
ADAPTATION STRATEGIES OF FISHERIES SOCIETY: A LOCAL RESPONSE TO CLIMATE CHANGE Maharani Yulisti, Christina Yuliaty, Nurlailiy, and Budi Wardono	317
OTHERS	
A COMBINATION OF CAFFEIC AND P-VANILLIN AS A POTENTIAL NATURAL POST EMERGENCT HERBICIDE FOR WEED CONTROL T.S. Chuah and S. Kalal	327
PRODUCTION OF PINEAPPLE (<i>Ananas comosus</i> (L). Merrill) ARTIFICIAL SEED FOR TISSUE CULTURE TRANSPORTATION AND DISTRIBUTION Sayed Mohd Zain Hasan and Nur Suraya Abdullah	331
EFFECT OF NITROGEN ON GROWTH AND FRUIT QUALITY OF PINEAPPLE GROWN ON SANDY SOIL M.A. Adzerni	333

OPTIMIZATION ENZYME LINKED IMMUNOSORBENT ASSAY (ELISA) USED FOR TESTING COW'S PROTEIN LEVELS IN VACCINE MEDIUM

Rochmah Kumijasanti and Tutik Juniastuti 335

INSULIN LIKE GROWTH FACTOR - I COMPLEX BLOOD SERUM IN IMPROVING THE QUALITY OF SHEEP MEAT

Suhermi Susilowati 339

OPTIMIZATION ENZYME LINKED IMMUNOSORBENT ASSAY (ELISA) USED FOR TESTING COW'S PROTEIN LEVELS IN VACCINE MEDIUM

Rochmah Kurnijasanti and Tutik Juniastuti

Department of Basic Veterinary Medicine, Veterinary Medicine Faculty, Airlangga University
Correspondence:

ABSTRACT

This study generally aim was to create a system-specific testing to determine the rest of the protein derived from cows on the medium used in producing the vaccine. While specific objective was to optimize Enzyme Linked immunosorbent assay (ELISA) that was optimized levels of antigen, antibody, conjugate and blocking materials used in the ELISA tests used to test the cow's protein content in the vaccine medium. Examination of the rest of the cow proteins are necessary because if the vaccine manufacturing using beef bullion good medium still have the rest of the protein can cause allergy if injected into the body. These tests should be sensitive and specific so that the chosen method of ELISA sandwich technique. ELISA with a sandwich technique is one of the ELISA technique in which antibodies attached on the specific surface hole tied with antigen to form Ab-Ag complex. Complex is then reacted with specific antibodies labeled with enzymes (conjugates) to form Ab-Ag complex. If the added substrate, this complex hydrolyze substrate is an indication of antigen. Substrate hydrolysis is usually held within a certain time and the reaction was stopped by adding a strong acid. The results showed that the use of blocking Bovine Serum Albumin (BSA) for 3% levels, antibody levels of 40 mcg/mL, the concentrations of antigen from 10, 5, 2.5, and 1.25 mcg/mL and IgG biotin conjugate with 20 times dilution gave optimal results and can be used as a standard to measure the cow's protein content in the vaccine medium.

Keywords: medium, vaccine, cow, ELISA, BSA

INTRODUCTION

Proteins are organic compounds that is a polypeptide with more than 50 units of amino acids by forming a complex structure. Molecular mass could even reach 10,000 and most of naturally occurring and found in all living things (Fessenden, 1997). Most proteins are immunogenic and are generally multi-determinant and univalent. Making vaccines using medium with beef broth base materials that have been added papain which is an enzyme to be become protein amino acids. Sometimes the protein in the medium is not completely broken down into amino acids, so the rest of the protein cow testing is very important because if there are still cows in the rest of the media proteins can cause allergies if the vaccine is injected in the body (Baratawijaya, 2000).

Many methods can be used to test the protein in a sample. In immunology, among others with elektroforesis, immunoblotting, radioimmunoassay, Enzyme Linked Immunoassay (ELISA) and many others. The use of ELISA methods because this method is easy to do, do not contain radioactive materials, more specific and can measure the quantity of protein (Charles *et al.*, 2001). ELISA is a method to determine the amount of antigen or antibody levels are low (Graham, 1998). Standard procedures are usually investigation by ELISA using Bovine Serum Albumin (BSA) as blocking materials. Because the BSA expensive alternatives sought as a blocking material that is used gelatine, with the assumption that the same gelatin protein derived from cow's gelatine prices far cheaper, easier available and can be stored at room temperature, so the gelatine can be expected to give results as good with the BSA in the ELISA tests are used to test the protein content of cows in the vaccine medium.

Gelatine in the nature insoluble in cold water but is soluble water temperature above 40°C. The solubility of gelatine is influenced a variety of factors

such as temperature, concentration and particle size. The pH of gelatine ranges 4.5-6.5. Gelatine is widely used as a food preservative (jelly, jam, candy), the pharmaceutical industry (ointments, capsules), wrapping paper money, making it lighter and cosmetics (Watkiss, 2000). The purpose of this study is the optimization ELISA by comparing the use of gelatine and BSA as a blocking material in the ELISA tests used to test the cow's protein content in the vaccine medium. The results of this study are expected to be useful to create a specific test system to determine the rest of the protein derived from cows on the medium used in producing the vaccine.

MATERIALS AND METHODS

Determination of protein standard curve created using BSA is the concentration of initially 10 mg/mL, then serially diluted so that the obtained concentration 78, 39, 19.5, 9.8, and 4.9 mcg/mL. After serial dilutions and solution of BSA with various concentrations was measured using a spectrophotometer U-2001 at wavelength $\lambda=200$ nm to measure absorbance, then the resulting data entered into the computer to know the linear regression equation.

Preparation Materials Used in Testing

The manufacture of blocking with 3% concentration blocking material is made by dissolving 1.5 g of BSA or gelatine to 50 mL solution in PBS pH 7.2, stirring with a magnetic stirrer. Blocking the manufacture of gelatine, stirring frequently, this solution should be heated too quickly to gelatine late.

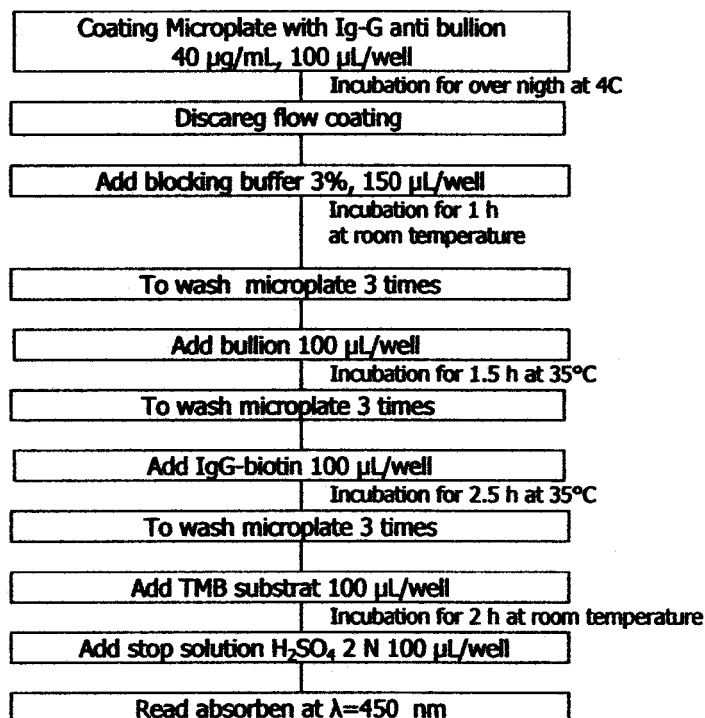
PBS Diluen

On the use of BSA as a blocking material, PBS solution made by dissolving 3 g BSA in 100 mL of PBS pH 7.2 stirred using magnetic stirrer and then added 100 μ L Tween 80 as much as 80 it serves to avoid

non-specific absorption on the tube wall or particles. Similarly, in making gelatine diluen using as material bloking, who replaced his BSA only be gelatine.

Dilution concentration bullion and IgG-biotin conjugate in series beef bullion as serially diluted antigen using diluen PBS. Initial concentration of protein bullion 60 mg/mL serially diluted. At the plate using BSA blocking materials created by the

concentration of starting 10, 5, and 2.5 µg/mL, was on the plate 1.25 µg/mL using gelatine as a blocking material, made with a concentration dilution start 5, 2.5, 1.25, and 0.63 µg/mL. The dilution of IgG-biotin conjugate serially was 10, 20, 30, and 40 times, respectively. Determination of protein content of beef bullion using ELISA method.



RESULTS AND DISCUSSION

Before the first experiment conducted among IgG-conjugates with biotin antibullion to be used as conjugates to be attached to the antigen, the bullion. These conjugates are useful as a labeled antibody enzyme. Determination of protein concentration standard curve using BSA. Protein concentration measurements performed using spectrophotometry. Absorbance protein in beef bullion measured at wavelength $\lambda=190-320$ nm. The results showed that the wavelength $\lambda=200$ nm, absorbance well enough that measurements performed on protein concentration in these wavelengths.

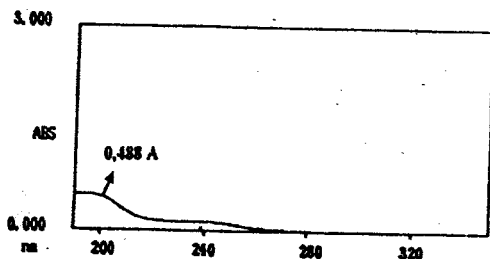


Figure 1. Beef bullion protein absorption at 500 times dilution

This optimization was performed to determine the amount of required antigen. Calculation of protein concentration was performed Then the protein content was measured using beef bullion curve made from

BSA with linear regression equation obtained:
 $Y = 0062 + 0.00035x$.

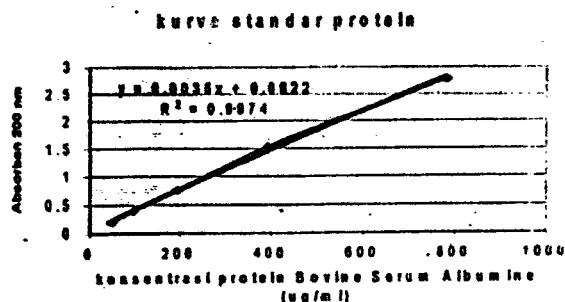


Figure 2. Protein standard curve

Determination of Protein Content in Cow Bullion

ELISA reaction order can be used to measure the quantity of antigen. It would require an optimal amount of antigen. After the curve is made and known to the linear regression equation can be calculated on the protein content of the bullion absorban measurements obtained at wavelength $\lambda=200$ nm the concentration can be calculated using a linear regression equation above is 120 mcg/mL in dilution 500 times or 60 mg/mL without dilution. Usability is the determination of protein concentration to determine the existing concentration on orotein beef bullion as an antigen. Protein content optimization beef bullion. In this study, the proteins specified in bullion as an antigen that is done by way of dilution story. Once known concentration of bullion is carried

bullion protein content optimization using BSA and gelatin as blocking the function to avoid non-specific reactions with the same concentration of 3%, which were both carried out in order to obtain optimal results and fewer errors in final results.

In this study, the concentration of antibodies attached to each surface of the same hole, which is 40 mcg/mL, and then attached to bullion as an antigen with a concentration different. After the antigen is attached to the IgG antibody conjugated with biotin as a conjugate with a concentration different. It's shown bullion as antigens will provide optimal results at a certain concentration.

Table 1. Optimal density (OD) of protein concentration beef bullion at various conjugates with BSA as a blocking

No	conjugate	The concentration of protein conjugates beef bullion (µg/mL)			
		10	5	2.5	1.25
1	IgG-biotin 1/10	0.525	0.559	0.544	0.523
2	IgG-biotin 1/20	0.450	0.369	0.314	0.298
3	IgG-biotin 1/40	0.195	0.162	0.205	0.212
4	IgG-biotin 1/80	0.238	0.218	0.158	0.114

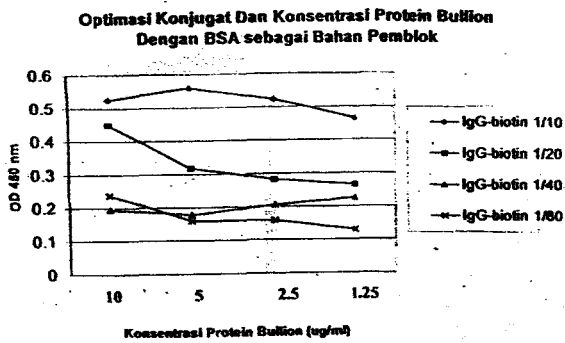
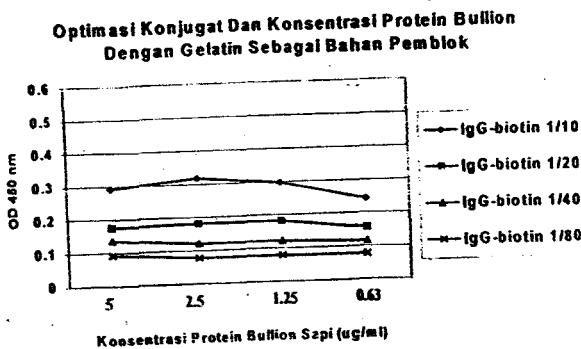


Table 2. Optimal density (OD) of protein concentration beef bullion at various conjugates with gelatine as a blocking

No	conjugate	The concentration of protein conjugates beef bullion (µg/mL)			
		5	2.5	1.25	0.63
1	IgG-biotin 1/10	0.292	0.317	0.297	0.303
2	IgG-biotin 1/20	0.175	0.193	0.181	0.166
3	IgG-biotin 1/40	0.136	0.139	0.121	0.121
4	IgG-biotin 1/80	0.093	0.086	0.078	0.093



Based on the results were show in Table 1 and graphs can be seen that the conjugate with 20 times dilution gave optimal results of the smaller concentration of the smaller OD values so that the resulting linear lines can be used as a standard to measure protein samples containing beef bullion. In Table 2 and graphs of the use of gelatine as a blocking material, ODnya value lower than the use of BSA as a blocking material, although decrease trends but does not provide optimal results. So to measure samples containing beef protein bullion still using BSA as a blocking material with a concentration of 3%, 40% levels of antibodies, conjugates at 20 times dilution and antigen concentrations range 10-1.25 mcg/mL is used as a standard curve. If the concentration is too high, the sample must be diluted and vice versa if the sample is too low concentration should be concentrated to be measured on the standard curve was created.

CONCLUSIONS

The results showed that the use of blocking BSA for 3% levels, antibody levels of 40 mcg/mL, the concentration of antigen from 10, 5, 2.5, and 1.25 mcg/mL and IgG biotin conjugate for 20 times dilution gave optimal results and can be used as a standard to measure the protein content of cows in the media vaccine.

REFERENCES

- Akahabe, K. and H. Umeyama. 1998. Binding Spesifik of Papain and Cathepsin B, Enzyme.
- Anonym. 2000. Bovine Serum Albumin (BSA) and Soluble Wheat Protein (SWP). www.friedli.com.
- Anonym. 2000. Intergen Company Bovine Serum Albumin BSA Frequently Asked Questions. www.intergen.com.
- Baratawijaya, K.G. 2000. Imunologi Dasar. Edisi IV. Fakultas Kedokteran, Universitas Indonesia. Jakarta.
- Bellanti, J.A. 1993. Imunologi. Edisi III. *Terjemaharr*. A.S Wahab. Gadjah Mada University Press. Yogyakarta.
- Charles, H., Z. Pinczes, A. Riell, D. Presuttil, and L. Miller. 2001. Cloning, Gene Expression and Protein Purification. Experimental Procedures and Process Rationale. Oxford University Press. New York.
- Fessenden, R.J. 1997. Dasar-Dasar Kimia Organik. Binarupta Aksara. Jakarta.
- Graham, W.B. 1998. Elisa Technology in Diagnosis and Research. Graduate School of Tropical Veterinary Science James Cook University of North QWueensland. Townsville.
- Watkiss, G., W. Goates, and M. Harris. 2000. Gelatin-A Natural Polymer That You Use Every Day. Department of Polyner Science. University of Southhern. Missisipi.