

ABSTRACT

First Annual International Seminar on **Trends in Science and Science Education 2014**

Organized by Faculty of Mathematics and Natural Sciences
State University of Medan

5th – 6th December 2014
Garuda Plaza Hotel - Medan



TRENDS IN SCIENCE
AND SCIENCE EDUCATION
2014 State University of Medan
5 - 6 December 2014





DAFTAR ISI

KEYNOTE SPEAKER

Prof. Dr. Syawal Gultom, M.Pd.

INVITED SPEAKER

1. Prof. Dr. Yaya Rukayadi

APPRECIATE THE NATION THROUGH RESEARCH JAVANESE TURMERIC OR
TEMULAWAK (*CURCUMA XANTHORRHIZA* ROXB.) : XANTHORRHIZOLAN
"ANGEL" COMPOUND IN THE RHIZOME OF TEMULAWAK AND ITS
APPLICATIONS

2. Prof. Dr. Phattrawan Tongkumchum

CONFIDENCE INTERVALS WITH APPLICATION TO ENVIRONMENTAL
STUDIES IN SOUTHERN THAILAND

ABSTRACTS

1. SCIENCE EDUCATION

Code	Author	Paper
P-01	SINTA DAMERIA SIMANJUNTAK	THE DIFFERENCE BETWEEN THE ABILITY OF STUDENTS IN SOLVING PROBLEM BY APPLYING COOPERATIVE LEARNING TYPE STAD WITH AND WITHOUT THE HELP OF GEOGEBRA
P-02	HALIM	EFEKTIVITAS PENGURANGAN MISKONSEPSI DALAM PEMBELAJARAN FISIKA MELALUI PENGUNAAN METODE KERJA LABORATORIUM PADA KONSEP SUHU DAN KALOR
P-03	HALIM	DAMPAK PENGGUNAAN MEDIA SIMULASI PHET UNTUK MEMINIMALKAN KUANTITAS MISKONSEPSI SISWA PADA PEMBELAJARAN MATERI LISTRIK DINAMIS
P-04	AJAT SUDRAJAT, PUTRI LYNNA A LUTHAN	MENINGKATKAN HASIL BELAJAR DAN MENUMBUHKEMBANGKAN KARAKTER MULIA SISWA SMA MELALUI MODEL PEMBELAJARAN KOOPERATIF BERBASIS MASALAH TERINTEGRASI BUKU AJAR KIMIA
P-05	SUYEDI HENDRA YANTO, SYAHMI EDI	THE EFFECT OF PREDICT OBSERVE EXPLAIN STRATEGY (POE) ON STUDENTS ACTIVITY AND LEARNING OUTCOME ON HUMAN RESPIRATORY SYSTEM SUB TOPIC IN GRADE XI SCIENCE PROGRAM AT SMA NEGERI 15 MEDAN ACADEMIC YEAR 2013/2014



Code	Author	Title
P-06	MARIATI PURNAMA SIMANJUNTAK DAN SIANTURI REBECCA	EFFECT OF COOPERATIVE LEARNING MODEL TYPE NUMBERED HEADS TOGETHER (NHT) BY MEDIA ANIMATION OF ACHIEVEMENT IN PHYSICS
P-07	PARGAULAN SIAGIAN, ELVIS NAPITUPULU, ARIFIN SIREGAR, HUDSON SIDABUTAR	PRE COMPETENCY TEST STANDARDIZATION ON PROGRAM OF FIELD EXPERIENCE HAT COMPETENCY-BASED GRADUATE EDUCATION THROUGH ITEM ANALYSIS
P-08	MARA BANGUN HARAHAP	AN INTENSIVE STUDY OF TEACHING MODEL OF QUANTUM PHYSICS AT STUDY PROGRAM OF PHYSICS EDUCATION IN UNIVERSITY
P-09	NURMAULITA	APPLICATION OF COGNITIVE THEORY OF CONTENT ON LEARNING ABILITY TO INCREASE PHYSICAL SCIENCE USING GENERIC INJECTION NEEDLE KIT
P-10	HASRUDDIN AND MAHMUD	THE DEVELOPMENT OF MEDIA DEVICE ON PROBLEM BASED LEARNING APPLIED MICROBIOLOGY
P-11	MARIATI SIMANJUNTAK AND REBECCA SIANTURI	EFFECT OF COOPERATIVE LEARNING MODEL TYPE NUMBERED HEADS TOGETHER (NHT) ASSISTED ANIMATION MEDIA OF STUDENT LEARNING OUTCOMES
P-12	SEHAT S. AND IKA NURJANNAH SIRAIT	EFFECT OF INQUIRY LEARNING TRAINING MODEL OF STUDENT LEARNING OUTCOMES IN HEAT SUBJECT MATTER
P-13	BETTY TURNIP, MARIATI SIMANJUNTAK AND FRIKSON PURBA	THE EFFECT OF PROBLEM BASED LEARNING MODEL TOWARD STUDENTS' SCIENCE PROCESS SKILLS IN SENIOR HIGH SCHOOL
P-14	DERLINA, RIKCY ALMEDA	THE EFFECT OF COOPERATIVE LEARNING MODEL TYPE GROUP INVESTIGATION ON STUDENT'S ACHIEVEMENT OF STATIC FLUID IN CLASS XI OF SMA NEGERI 1 PERBAUNGAN A.Y. 2013/2014
P-15	RIDWAN ABDULLAH SANI	LOW ACHIEVEMENT OF INDONESIAN STUDENT IN PISA AND TIMSS TEST RESULTS AND THE RELATED FACTORS
P-16	UMI CHOTIMAH, ZAHRA ALWI, FARIDA	ANALYSIS OF COMPETENCY AND PERFORMANCE OF SECONDARY TEACHERS: CASE STUDY AT FIVE CITIES/DISTRICTS IN SOUTH SUMATRA
P-17	SONDANG R MANURUNG	CONTRIBUTION OF FORMAL THINKING ABILITY ON THE CONCEPT MASTERY OF KINEMATICS
P-18	ANNA JUNIAR, DEDE SURIYANI, PRAVIL MISTRYANTO, DEBBY MASTERIANA	THE EFFECT OF GUIDED DISCOVERY BASED LEARNING MODEL TOWARDS STUDENTS LEARNING OUTCOMES OF CHEMISTRY ON REDOX REACTION CONCEPT
P-19	RAMLAN SILABAN, AGUSTINA ML TOBING, IRVING JOSAFAT ALEXANDER	THE EFFECTIVENESS OF LABORATORY EXPERIMENT METHOD TO INCREASE ACTIVITY AND STUDENT'S ACHIEVEMENT ON TEACHING SALT HYDROLYSIS

Code	Author	Title
P-20	DWI RETNO SUYANTI, KRISTIAN H. SUGIYARTO	THE GENERIC ABILITY IMPROVED BY INTERACTIVE MEDIA BASED OF COLLABORATIVE LEARNING IN CHEMISTRY
P-21	ADRIANA Y.D. LBN GAOL AND HERBERT SIPAHUTAR	MISCONCEPTION ON BIOLOGY MATERIALS AMONG SENIOR HIGH SCHOOL STUDENTS AND TEACHERS IN NORTH SUMATRA
P-22	DRA. TRISNI ANDAYANI, M.SI	DEVELOPMENT OF HYBRID LEARNING MODEL IN SOCIOLOGY INTRODUCTION COURSE AT THE STATE UNIVERSITY OF MEDAN
P-23	NAEKLAN SIMBOLON, FRIDAWATI R. TAMBUNAN	IMPROVING SPEAKING ABILITY OF THE STUDENTS IN ENGLISH LESSONS BY USING LEARNING MODEL TPS (THINK PAIR SHARE) IN CLASS V SD IMMANUEL MEDAN
P-24	ASRIN LUBIS	APPLICATION BASED LEARNING RESOURCE MODEL FOR IMPROVING STUDENT LEARNING OUTCOMES IN THE CUBE AND BEAMS MATTER IN CLASS VIII SMP NEGERI 5 STABAT T.A. 2013/2014
P-25	JURUBAHASA SINURAYA, SEHAT SIMATUPANG, AND IDA WAHYUNI	TRIAL SOFTWARE PRODUCT DEVELOPMENT BASED LEARNING PROBLEMS FOR IMPROVING LEARNING OUTCOMES GENERAL PHYSICS II PHYSICS EDUCATION STUDENTS, FMIPA, STATE UNIVERSITY OF MEDAN

2. MATHEMATICS

Code	Author	Title
M-01	AGUSMAN	AN IMPROVED APPROACH FOR SOLVING THE PLANT CYCLE LOCATION PROBLEM
M-02	SYAFARI	AN INTEGRATED OPTIMIZATION MODEL FOR RIVER WATER QUALITY TO ESTIMATE WASTE WATER REMOVAL
M-03	NERLI KHAIRANI	AN ACTIVE CONSTRAINED BASED APPROACH FOR SOLVING PROBLEMS FOR POSITIONING NEW PRODUCTS UNDER RISK
M-04	MAKSUM SYAHRI LUBIS, SUWARDI, SOFYAN, RIDWAN	STATISTICS AS A MODEL PARAMETERS TO DETERMINE THE EFFECT OF INCREASING THE WELFARE SOCIETY FOR TRANSPORTATION INFRASTRUCTURE IN RURAL DISTRICT DELI SERDANG
M-05	IBNUSSALAM HARAHAP	STATISTIK DAN PENGUKURAN KEMISKINAN DI KABUPATEN TAPANULI SELATAN

3. BIOLOGY

Code	Author	Title
B-01	MASDIANA SINAMBELA, MARIATY SIPAYUNG	FREQUENCY ATTENDANCE OF MAKROZOOBENTOS WITH PHYSICS FACTOR AND CHEMISTRY IN TERRITORIAL WATER OF BABURA RIVER
B-02	LIANA DWI SRI HASTUTI, JANE NICKLIN, AND AMEILIA ZUIYANTI SIREGAR ³	INVENTORY OF NEMATOPHAGOUS FUNGI IN SUMATERA UTARA, INDONESIA
B-03	SUMIHAR HUTAPEA, ELLEN LUMISAR PANGGABEAN, ENDANG SARI SIMANULLANG	LAND DEGRADATION IN THE UPSTREAM OF DELI WATERSHED IN NORTH SUMATERA BASED ON SOIL EROSION RATE REDICTION AND SOIL EROSION HAZARD LEVEL
B-04	USWATUN HASANAH, RIWAYATI DAN IDRAMSA	DESCRIPTION ENDOPHYTIC FUNGI OF PLANTS RARU (COTYLELOBIUM MELANOXYLON) GENUS ALTERNARIA
B-05	SABARUDDIN YUNIS BANGUN	EVALUATION OF SPORTS TRAINING PROGRAM GUIDANCE CENTER STUDENT (PPLP) NORTH SUMATRA
B-06	SYAHMI EDI, LAZUARDI, IDRAMSA	IN VITRO SELECTION UPLANDRICE NIAS ISLAND TO ALUMINIUM RESISTANT CHARACTER AND LOW PH THROUGH SOMACLONAL VARIATION AND GAMMA-RAYS IRRADIATION
B-07	ELIDA HAFNI SIREGAR, TRI ATMOWIDI, SIH KAHONO	DIVERSITY AND ABUNDANCE OF INSECT POLLINATORS IN DIFFERENT AGRICULTURAL LANDS IN JAMBI, SUMATERA
B-08	BINARI MANURUNG. PUJI PRASTOWO & ERIKA ROSDIANA	BIODIVERSITY OF LEAF-AND PLANTHOPPER (HEMIPTERA: AUCHENORRHYNCHA) ON RICE ECOSYSTEM AT HIGH LAND TAPANULI OF NORTH SUMATERA-INDONESIA
B-09	FAUZIYAH HARAHAP	THE GROWTH OF ORCHID (<i>DENDROBIUM</i> SP) IN <i>IN VITRO</i> GIVING WITH COCONUT WATER ON DIFFERENT MEDIA
B-10	HERBERT SIPAHUTAR DAN ADRIANA Y.D. LBN GAOL	MATING BEHAVIOR OF MALE MICE AFTER MSG ADMINISTRATION DURING INTRA UTERINE TO MATURE PERIODS OF LIFE
B-11	MELVA SILITONGA, P.MAULIM SILITONGA	IMMUNOSTIMULANT ACTIVITY OF AQUEOUS EXTRACT OF BANGUNBANGUN (<i>Plectranthus amboinicus</i> Lour.) LEAVES ON RATS WITH DPT ANTIGENT

4. PHYSICS

Code	Author	Title
F-01	MARZUKI SINAMBELA, ESTY SURYANINGSIH	A COMPARISON OF METHODS FOR TESTING HOMOGENEITY OF AVERAGE TEMPERATURE AND PRECIPITATION SERIES
F-02	ABD HAKIM, MARAUSAHA SIMANJUNTAK	RESISTANCE ANALYSIS OF ROCK AND MINERAL UNDER SURFACE BY USING GEOELECTRIC METHOD IN THE VILLAGE OF DOLOK MARAWA SIMALUNGUN DISTRIC
F-03	TOGI TAMPUBOLON	SPECTRAL CHARACTERISTICS OF LAND COVER BASED ON SPECTROMETER CROPSCAN MSR 16R (STUDY CASE IN MEDAN - INDONESIA)
F-04	EIDI SIHOMBING	INFLUENCE OF SINTERING TIME ON THE PROPERTIES OF HIGH TEMPERATURE SUPERCONDUCTOR BPSCCO BASED
F-05	NURDIN SIREGAR, EDDY MARLIANTO, SAHARMAN GEA AND NURUL TAUFUQU	INFLUENCE OF CONCENTRATION AND POST-HEATING TO THE CRYSTAL SIZE AND OPTICAL PROPERTIES OF ZNO THIN FILMS
F-07	ABD HAKIM, S, MARAUSAHA SIMANJUNTAK	RESISTANCE ANALYSIS OF ROCK AND MINERAL UNDER SURFACE BY USING GEOELECTRIC METHOD IN THE VILLAGE OF DOLOK MARAWA SIMALUNGUN DISTRIC
F-08	TOGI TAMPUBOLON	SPECTRAL CHARACTERISTICS OF LAND COVER BASED ON SPECTROMETER CROPSCAN MSR 16R (STUDY CASE IN MEDAN - INDONESIA)
F-09	M. GADE	CASSAVA LEAVES BATTERY AS AN ALTERNATIVE ENERGY BASED ON ENVIRONMENT FRIENDLY TECHNOLOGY

5. CHEMISTRY

Code	Author	Paper
K-01	WESLY HUTABARAT	A NEW BREAKTHROUGH IN CHEMISTRY AND MANAGEMENT
K-02	ABU BAKAR	PREPARATION OF KRAFT LIGNIN BASED POLYOL FROM PULP MILL BLACK LIQUOR THROUGH OXYPROPYLATION REACTION
K-03	JUNIFA LAYLA	BIOFUEL PRODUCTION FROM HYDROCRACKING MEFA OF RICE BRAN OILS OVER NATURAL ZEOLIT SUPPORTED NI AND NI-MO METALS
K-04	JOSHUA, SAHARMAN GEA	THE UTILIZATION OF TAMARILLO PEELS AS MATRIX OF BACTERIAL CELLULOSE-BASED NANOPAPER
K-05	AHMAD NASIR PULUNGAN, JUNIFA LAYLA SIHOMBING,	PREPARATION, CHARACTERIZATION AND ACTIVITY ASSAY OF NIO-COO-MOO/ZEOLITE-Y CATALYST ON HYDROCRACKING OF CASHEW

Code	Author	Paper
	HAFNI INDRIATI NASUTION, RINI SELLY, RATU EVINA DIBYANTINI, WEGA TRISUNARYANTI, TRİYONO	NUT SHELL LIQUID IN FIXED-BED REACTOR
K-06	SAHARMAN GEA, JULINAWATI, BASUKI WIRJOSENTONO	CHARACTERIZATION AND UTILIZATION OF BENTONITE SABANG OF ACEH (INDONESIA) AS FILLERS POLYMER NANOCOMPOSITE
K-07	MURNIATY SIMORANGKIR, RIBU SURBAKTI, TONEL BARUS DAN PARTOMUAN SIMANJUNTAK	INHIBITORY ACTIVITY OF ALKALOID OF EXTRACT ETHANOL RANTI HITAM (SOLANUM BLUMEI NEES EX BLUME) FRUIT ON L ₁₂₁₀ LEUKIMIA CANCER CELLS GROWTH
K-08	MAHYUNI HARAHAP, FENNY AULIA, SAHARMAN GEA	THE ISOLATION OF NANOCRYSTALLINE CELLULOSE FROM PALM EMPTY FRUIT BUNCHES
K-09	LISNAWATY SIMATUPANG	EFFICIENCY AND SELECTIVITY IMPROVEMENT OF THE SILICA CHITOSAN HYBRID BY PH OPTIMILIZATION IN SIMULTAN HEAVY METALS MG(II) AND NI(II) ADSORBTION USING SOLID PHASE EXTRACTION
K-10	EDDIYANTO, ALKHAFI MAAS SIREGAR, DAN WINSYAHPUTRA RITONGA	NATURAL RUBBER MODIFICATION: GRAFT-COPOLYMERIZATION OF CYCLIC NATURAL RUBBER BY FREE RADICAL REACTION WITH MALEIC ANHYDRIDE
K-11	MARHAM SITORUS DAN BAJOKA NAINGGOLAN	THE ACTIVITY VALUES OF CLA (CONJUGATED LINOLEIC ACID) SYNTHESIZEDBY USINGVISSIBLESPECTROFOTOMETER WITH DPPH AS FREE RAICAL
K-12	ARY ANGGARA WIBOWO, SAĽSABILA FIRDAUSYAH, SITI HAJJAH, DINA DWIYANTI, JUNIVA LAYLA SIHOMBING, AHMAD NASIR PULUNGAN	STUDY OF RUBBER SEED OILS HYDROCRACKING INTO BIOGASOLINE AND DIESEL FRACTION OVER THE COMBINATION Y-ZEOLITE AND NI CATALYST
K-13	RUDI KARTIKA, EDDIYANTO	THE EFFECT OF BIJI METE (<i>SCOMBEROMORUS COMMERSON</i>) IN THE FEED TO THE DECLINE IN BLOOD CHOLESTEROL LEVEL HYPERCHOLESTEROLEMIC MALE MICE (<i>MUS MUSCULUS</i>)
K-14	YUSNAIDAR, BASUKI WIRJOSENTONO, THAMRIN, EDDIYANTO,	ISOLASI DAN KARAKTERISASI A-SELULOSA DAUN PADIISOLATION AND CHARACTERIZATION OF A CELLULOSE OF RICE LEAVES
K-15	RIDWANTO, RAHMAT NAULI, ANI SUTIANI, ANNY SARTIKA DAULAY	EFFECT OF TEMPERATURE AND COMPOSITION ZEOLITE ON THE PERFORMANCE MEMBRANE-ZEOLITE FOR SEPARATION OF ETHANOL-WATER

Code	Author	Paper
		BY PERVAPORATION
K-16	NORA SUSANTI, JOSHUA SHARPE, AND KRIZSTINA VARGA	THE BINDING BEHAVIOUR AND CONFORMATION OF <i>Rhodobacter sphaeroides</i> TSPO IN DDM AND DPC DETERGENTS
K-17	DWI RETNO SUYANTI, KRISTIAN H. SUGIYARTO	THE GENERIC ABILITY IMPROVED BY INTERACTIVE MEDIA BASED OF COLLABORATIVE LEARNING IN CHEMISTRY
K-18	MARHAM SITORUS DAN BAJOKA NAINGGOLAN ¹	THE ACTIVITY VALUES OF CLA (CONJUGATED LINOLEIC ACID) SYNTHESIZED BY USING VISIBLE SPECTROFOTOMETER WITH DPPH AS FREE RAICAL
K-19	KARYA SINULINGGA AND SATRIA MIHARDI	EFFECT OF RICE HUSK ASH AND PALM OIL BOILER ASH AS A MIXTURE ON CONCRETE POROSITY
K-20	IIS SITI JAHRO, DJULIA ONGGO, BOHARI M. YAMIN, IBRAHIM BABA' AND NANDANG MUFTI	SYNTHESIS, CRYSTAL STRUCTURE AND MAGNETIC PROPERTIES OF THE SPIN TRANSITION SYSTEM $[Fe(pq)_3](ClO_4)_2$ COMPLEX

UNIMED

THE
Character Building
UNIVERSITY



TRENDS IN SCIENCE
AND SCIENCE EDUCATION
2014 State University of Medan
5 - 6 December 2014



P-10

THE DEVELOPMENT OF MEDIA DEVICE ON PROBLEM BASED LEARNING APPLIED MICROBIOLOGY

Hasruddin¹ and Mahmud²

1Lecturer in Biology Education Post Graduate, State University of Medan.

2Lecturer in Chemical Education Post Graduate, State University of Medan.

hasruddin_lbsmdn@yahoo.com

ABSTRACT

This study aimed to develop a linear power point media devices on problem-based learning applied microbiology. Research development begins with a survey of the students the importance of needs analysis linear power point in the learning process, then do a linear power point media development with 4-D model of the stages comprising the step of defining, the design phase, stage of development, and the phase spread (disseminate).

Subjects were two experts of microbiological matter, two experts of instructional technology, two experts of instructional media, and twenty-one students of Biology Education Master program at third semester, which is determined by purposive sampling technique. The research found that validation of linear media power point Nata de Coco material an average 84.75% (categorized as feasible), Nata de Pinna material on average 86.25% (categorized as feasible), Nata de Soya material on average 92.25% (categorized as very feasible), the material Nata de Cassava average of 82.25% (categorized as feasible), wine fermentation material on average 84.25% (categorized as feasible), and the material fermented cider average of 83.25% (categorized as feasible) to be applied to the students of the Master of Biology Education in Applied Microbiology course.

Key Words: Media Device, Linier Power Point, Problem Based, Applied Microbiology.

THE
Character Building
UNIVERSITY