

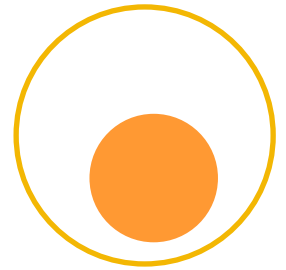
ICITD 2021



The 1st International
Conference on Infectious
and Tropical Diseases

November
29th - 30th

BOOK OF ABSTRACTS



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Welcome Message From Coordinator of Organizing Committee



Ladies and Gentlemen,

It gives me great pleasure to acknowledge the 1st International Conference on Infectious and Tropical Disease (ICITD) 2021, organized by the center of excellence for the higher education of Research Center on Global Emerging and Re-emerging Infectious Diseases (RC-GERID) in collaboration with the Institute of Tropical Infectious Disease and Perhimpunan Dokter Spesialis Mikrobiologi Klinik Indonesia/PAMKI (Association of clinical microbiology in Indonesia). This conference is held to share updated information about COVID-19 and other Infectious and tropical diseases that still need to pay more attention in the pandemic era.

I have high hopes that this will bring together researchers to share and discuss the increasingly important issue about COVID-19 that is still a hot issue now and other infectious and tropical diseases that have become health problems until now in many perspectives from clinical, immunology, molecular, diagnostic, treatment, etc.

I hope that all participants of the conference will gain great experience from all the studies and findings presented during the events.

I would like to express my sincere appreciation to all keynote and invited speakers from national and international giving the lecture and sharing their expertise and knowledge with the participants in their busy time. And also, I would like to congratulate all the working committee members of the 1st International Conference on Infectious and Tropical Diseases for their tremendous teamwork effort in making this great event.

This event will contribute to a better understanding of our health problem in many scopes' infectious disease, therapeutics, vaccines, etc.

Thank you very much
Sincerely yours,

Laura Navika Yamani, Ph.D
Coordinator of Organizing Committee



Organizing Committee

1st International Conference on Infectious and Tropical Disease (1st ICITD 2021)

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Conference Programme

1st International Conference on Infectious and Tropical Disease (1st ICITD 2021)

Day 1: November 29, 2021 (Surabaya Time, GMT +7 hours)

Time (WIB)	Event
08.30-09.30	Registration
09.30-10.15	Opening
	Singing National Anthem "Indonesia Raya"
	Singing Hymne Universitas Airlangga
	Performance: Traditional Welcome Dance
	Welcoming speech Prof. dr. Maria Lucia Inge Lusida., M. Kes, PhD, Sp.MK(K). (Chairman of Organizing Committee)
	Welcoming speech Prof. Dr. Kuntaman, dr., M.S., Sp.MK(K) (National Chairman of the Indonesian Society for Clinical Microbiology)
	Opening speech Prof. Dr. Mohammad Nasih, SE., MT., Ak, CMA (Rector Universitas Airlangga)
10.15-10.35	Virtual tour of Institute of Tropical Disease, Universitas Airlangga
SPEAKER SESSION 1	
10.35-10.55	Invited Speaker I: Dr. Soedarsono, dr., Sp.P(K) (Faculty of Medicine, Universitas Airlangga, Indonesia) "Management of COVID-19 Pandemic"
10.55-11.15	Invited Speaker II: Dr. Gatot Soegiarto, dr., SpPD, K-AI, FINASIM (Faculty of Medicine, Universitas Airlangga, Indonesia) "The Circulating SARS-CoV-2 Variants and The Need for Booster Vaccination"
11.15-11.35	Invited Speaker III: Prof. Masanori Kameoka (Graduate School of Health Science, Kobe University, Japan) "Developing Neutralization Assay for SARS-CoV-2 Vaccine Candidate"
11.35-12.15	Discussion
12.15-13.15	Break Time
13.15-14.25	ORAL & POSTER PRESENTATION SESSION 1
14.25-15.30	ORAL & POSTER PRESENTATION SESSION 2
15.30	Closing



Conference Programme

1st International Conference on Infectious and Tropical Disease (1st ICITD 2021)

Day 2: November 30, 2021 (Surabaya Time, GMT +7 hours)

Time (WIB)	Event
08.30-09.30	Registration
09.30-10.40	ORAL & POSTER PRESENTATION SESSION 3
10.40-11.45	ORAL & POSTER PRESENTATION SESSION 4
11.45-12.45	Break Time
SPEAKER SESSION 2	
12.45-13.05	Keynote Speaker: Dr. Vivi Setiawaty, dr., M. Biomed NIHRD, Ministry of Health Indonesia
13.05-13.25	Invited Speaker I: Prof. Dr. Fedik Abdul Rantam, drh (Institute of Tropical Disease, Universitas Airlangga, Indonesia) “Development of Merah Putih Vaccine Inactivated Platform”
13.25-13.45	Invited Speaker II: Prof. Dr. Habibah Wahab (Universiti Sains Malaysia) “Natural Products Based Drug Discovery Efforts for The Discovery of Drugs for Dengue and COVID-19”
13.45-14.05	Invited Speaker III: Dr. Jonathan Wong, Ph.D. (Director of Scientific Development, Immunitor Inc) “Current and Future Developments in the Treatment of Virus-Induced Cytokine Storm”
14.05-14.50	Discussion
14.50-15.15	Closing
	Best Poster & Oral Presentation Announcement



Abstract of Invited Speakers

Plenary Session 1 - 1

Management of Covid-19 Pandemic

Soedarsono

Department of Pulmonology and Respiratory Medicine Faculty of Medicine, Universitas Airlangga

Coronavirus disease 2019 (COVID-19) caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) is a pandemic with a rapidly increasing incidence of infections and deaths. Symptoms may differ with severity of disease. The spectrum of illness can range from asymptomatic infection to critical illness. The common clinical symptoms of COVID-19 are fever, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, diarrhea. The most common abnormalities in chest X-rays are bilateral multifocal opacities, while in computed tomography of the chest are bilateral peripheral ground-glass opacities, with areas of consolidation developing later in the clinical course of COVID-19.

Currently, reverse transcriptase polymerase chain reaction (RT-PCR) based diagnostic tests (which detect viral nucleic acids) are considered the gold standard for detecting current SARS-CoV-2 infection. Antigen-based diagnostic tests (which detect viral antigens) are less sensitive than RT-PCR-based tests, but they have similarly high specificity. The use of serologic (antibody) testing as the sole basis for diagnosis of acute SARS-CoV-2 infection is not recommended.

Many pharmacologic therapies are being used or considered for treatment. According to their needs and risks, the treatment are oxygen therapy, anticoagulation therapy, steroids or immunomodulators, antivirals, and interleukin-6 inhibitors under certain indications. Guidelines are frequently updated based on critical evaluation of rapidly emerging literature to support the decisions about treatment and management of patients with COVID-19. In the community, COVID-19 control strategy consists of 3T (test, treat, trace), 3M (wearing mask, washing hand, keep safe distance), and integrated vaccination programs.



Abstract of Invited Speakers

Plenary Session 1 - 3

Establishment of High-Throughput and Safety Assay Systems for the Development of Vaccines and New Antivirals against SARS-CoV-2/COVID-19-Developing Neutralization Assay for SARS-CoV-2 Vaccine Candidate

Masanori Kameoka

Division of Global Infectious Diseases, Department of Public Health, Kobe University
Graduate School of Health Sciences

COVID-19 pandemic has been continued. Considering the properties of SARS-CoV-2, the causative agent of COVID-19, prevention of SARS-CoV-2 infection by vaccination is important. It is also important to develop antiviral drugs that target SARS-CoV-2 to achieve infection control. SARS-CoV-2 is a highly pathogenic virus and is necessary to be handled in the P3 laboratory. This has led to restrictions on the laboratories that used to evaluate the neutralizing activity induced by vaccine candidates and the effects of antiviral substances. We recently constructed a neutralization assay using a pseudovirus (luciferase reporter recombinant lentiviral vector expressing SARS-CoV-2 S envelope S protein, S-LV) and used the assay system for the evaluation of vaccine candidates. In addition, by using molecular biological techniques, we could also prepare S-LV expressing S proteins derived from SARS-CoV-2 mutants. Moreover, we constructed a SARS-CoV-2 RNA replicon assay system. Replicon RNA is a non-infectious and self-replicative viral RNA lacking structural genes involved in infection and remaining non-structural genes necessary for viral RNA replication inside cells; therefore, it could mimic the mechanism of SARS-CoV-2 RNA replication in infected cells without producing infectious virus. We could handle it safely at the P2 laboratory as well as can apply it for high-throughput screening of antiviral substances. I will explain the development and application of these assay systems in the talk.



Abstract of Invited Speakers

Plenary Session 2 - 1

Development of Merah Putih Vaccine Inactivated Platform

Dr. Fedik Abdul Rantam, DVM

Professor in Virology and Immunology

Research Center for Vaccine Technology and Development, Institute of Tropical Disease, Universitas Airlangga, Surabaya, Indonesia

Since 2019-2021 β -Coronavirus, strain *Severity Acute Respiratory Syndrome-Coronavirus-2* (SARS-CoV-2) is as the cause of the pandemic that vaccine continues to develop as an alternative in eliminating the cause of the pandemic. No less than 143 countries have tried to develop vaccines with various platforms although several vaccines already exist in circulation and are also still in the third phase of preclinical trials, that the vaccine is still important role.

Since 2020, the Indonesian state has also developed a SARS-CoV-2 vaccine, known as the Merah Putih vaccine with various platforms that are disseminated at various institutions and research institutes at universities such as the Eijkman Institute has developed the yeast system protein subunit, and the recombinant adenovirus system; University of Indonesia has developed DNA, mRNA, VLP vaccines platforms; Bandung Institute of Technology developed the Adenovirus system platform and Subunit vaccine; The Indonesian Institute of Sciences (LIPI) developed a recombinant fusion protein; Gadjah Mada University developed protein subunits with the *E.coli* system; Padjadjaran University develops passive IgY vaccine; Universitas Airlangga has developed an inactivated vaccine platform. All of the above vaccine platforms are still in the exploration stage, except for the inactivated vaccine platform from Universitas Airlangga which has completed phase 2 preclinical trials and is currently conducting a pilot scale for phase 1 clinical trials.

The challenging to develop vaccines is apart from infrastructure, funding is also the large number of variants circulating in the world, and also in Indonesia there are several variants. Variant concerns such as Alfa (B.1.1.7 UK); Beta B.1.351.1, B.1.351.2, B.1.351.3 South Africa; Delta B.1.617.2+AY.1+.2+.3 India; while the variant interests are Epsilon B.1.429, B.1.427 (USA/California), Eta (B.1.525) UK/Nigeria, Kappa (B.1.617.1) India. All of these variants may reduce vaccine efficacy, so a very in-depth exploration of vaccine seeds is needed, starting from gene stability to the nature of viral proteins. The conclusions from various vaccine platform approaches still need exploration to get a good vaccine seed, while the Universitas Airlangga Merah Putih vaccine inactivated platform has prepared a pilot scale for phase 1 clinical trials.



Abstract of Invited Speakers

Plenary Session 2 - 3

Current and Emerging Therapies for the Management of Virus-induced Cytokine Storm

Jonathan P. Wong¹, Levon M. Khachigian², and Vichai Jiranthitikal³

¹Immunitor, Vancouver, BC, Canada

²Vascular Biology and Translational Research, University of New South Wales, Sydney, Australia,

³CEO, Immunitor, Thailand

Highly pathogenic viruses including SARS-CoV-1, -2, Spanish influenza, H5N1 avian influenza, Ebola, dengue fever and others are known to cause severe and acute, uncontrolled inflammatory responses that are associated with multiple organ injury and increased host mortality. Immune dysregulation, also termed cytokine storm or hypercytokinemia, is a leading cause of acute respiratory distress syndrome (ARDS) and mortality in COVID-19 patients. Despite its clinical significance, there is no current standard treatment approved to specifically treat cytokine storm. This presentation will focus on various interventional approaches which when given at appropriate phase of disease progression, can effectively treat cytokine storm-associated lung and other organ injury, and significantly improve survival in severe COVID-19 patients. Clinical studies with severe COVID patients treated with anti-inflammatory agents such as glucocorticoids (dexamethasone), interleukin-6 receptor inhibitor, tocilizumab, had shown significant therapeutic benefits mitigating the need for mechanical ventilation, avert disease worsening, and enhance patient survival. Furthermore, this presentation will also highlight an experimental treatment using a catalytic DNA (DNAzyme) called Dz13, that targets *c-jun* and inhibits the expression of pro-inflammatory cytokines, which may potentially be useful cytokine storm induced by highly pathogenic viruses. Preclinical studies have shown Dz13 is effective in the treatment of cytokine storm associated with avian influenza A (H5N1) virus and enhances survival. Better understanding of virus-immune system interactions will inform the design and development of novel therapeutics for the treatment of virus-induced cytokine storm.



Oral and Poster Presentation Schedule

1st International Conference on Infectious and Tropical Disease (1st ICITD 2021)

Day 1	29 November 2021
Room 1	

Session 1 : 13.15 – 14.25 (Western Indonesia Time, UTC+7)
Scope : Clinical Manifestation (Oral)
Moderator : LanggengWaskito, dr., Ph.D

Abstract ID	Name	Title
OP02	Setyabudi	Dentistry and its high relationship with COVID-19 new variants in daily dental practice
OP03	Dhania Laxhmi	Effects of COVID-19 and malaria co-infection on disease severity: a systematic review
OP04	Etik Lusiani	The relationship knowledge and action of mother's behavior towards covid-19 prevention effort at pacung asri housing, belalang village, tabanan regency, bali
OP14	Aditea Etnawati Putri	Evaluating the relationship of changes in Ig G sRBD SARS CoV-2 levels and interleukin-10 with CT value and mortality in convalescence plasma recipients of severe-critical corona virus diseases 2019 (covid-19)
OP31	Laura Navika Yamani	Analysis of Covid-19 Vaccine Serosurvey in Surabaya, Indonesia
OP25	Anisa Lailatul Fitria	Preliminary Study Revealed Denv3 As The Predominant Dengue Virus Serotype At Panembahan Senopati Hospital Bantul, Yogyakarta, During 2016 Outbreak



Oral and Poster Presentation Schedule

1st International Conference on Infectious and Tropical Disease (1st ICITD 2021)

Day 1	29 November 2021
Room 1	

Session 2 : 14.25 – 15.30 (Western Indonesia Time, UTC+7)
Scope : Clinical Manifestation (Oral and Poster)
Moderator : LanggengWaskito, dr., Ph.D

Abstract ID	Name	Title
OP17	Febri Dwi Haryono	Case report: rifampicin-resistant tuberculosis with co-infection covid-19
OP20	Alfian Nur Rosyid	Neutrophil to lymphocyte ratio compared to IL-6 to IL-10 ratio as severity and mortality predictor of covid-19
PP01	Setyawardhana	Acute Limb Ischemia in a Patient with covid-19 Infection and T2DM
PP02	Erika Martining Wardani	Characteristics and clinical manifestations of inpatient covid-19 patients at dr soetomo hospital surabaya, indonesia
PP14	Alfian Nur Rosyid	Initial Systemic serum ACE2 as severity and mortality predictor of covid-19
PP16	Desi Maghfirah	Characteristics of covid-19 patients with gastrointestinal manifestations : a study from aceh indonesia
PP17	Dyana Destylya	Clinical factors determine the severity of covid-19 in adam malik general hospital, medan
PP19	Wahyu Sulistya Affarah	After three years: latest situation on rabies outbreak in west nusa tenggara
PP20	Riyana Noor Oktaviani	Erythema multiforme eruption due to covid-19 until 6 months post covid-19: case report



Oral and Poster Presentation Schedule

1st International Conference on Infectious and Tropical Disease (1st ICITD 2021)

Day 1	29 November 2021
Room 2	

Session 1 : 13.15 – 14.25 (Western Indonesia Time, UTC+7)
Scope : Infection and Immunity (Oral)
Moderator : Dalla Doohan, dr., Ph.D

Abstract ID	Name	Title
OP08	Budi Yanti	Evaluation of bronchoscopy in the diagnosis of mycobacterium tuberculosis complex species infection
OP09	Meilani Dhamayanti	Therapeutic communication therapist in the process of coronavirus healing at rumah barito
OP16	Daniel Edbert	Phenotypic grouping of catheter-associated <i>Escherichia coli</i> from covid-19 isolation wards using hierarchical clustering in surabaya
OP18	Ika Nurvidha M Mantra	Characteristics of rifampicin-resistant in tuberculosis new and discontinuous treatment cases in the sanglah general hospital
OP28	Dinar Adriaty	Antibody profile of <i>Mycobacterium leprae</i> L-ESAT-6 in epitope idalle compared to PGL-1 in patients and household contact from leprosy endemic area in east java indonesia



Oral and Poster Presentation Schedule

1st International Conference on Infectious and Tropical Disease (1st ICITD 2021)

Day 1	29 November 2021
Room 2	

Session 2 : 14.25 – 15.30 (Western Indonesia Time, UTC+7)
Scope : Infection and Immunity (Oral dan Poster)
Moderator : Alicia Margaretta Widya, dr., M.Ked, Klin., Sp.MK

Abstract ID	Name	Title
OP19	Ni Putu Winda Dwijayanti	Antimicrobial susceptibility pattern of <i>Streptococcus suis</i> isolates from clinical specimen in sanglah general hospital, denpasar, bali
OP21	Irbasmantini Syaiful	Multi-drug resistant organisms among bacteremia patients in Dr. Soetomo general academic hospital surabaya during covid-19 pandemic
PP03	Fery Setiawan	An Analysis of genetic risk factor (chromosome 3 and 9) and mutation of <i>spike</i> covid-19 in the severity and transmission factor
PP13	I Gede Wahyu Toya Pratama	The Sensitivity of <i>Pseudomonas aeruginosa</i> to ceftazidime and ciprofloxacin from wound-bed swab specimens collected during march to august 2021 at sanglah general hospital, bali, indonesia
PP18	Irbasmantini Syaiful	<i>Aspergillus</i> pyopneumothorax in an immunocompetent covid-19 patient: a case report
PP21	Christine Raphaela Tarmauli Simanjuntak	Case report: secondary spontaneous pneumothorax as a complication of covid-19 infection with bacterial and fungal infection at adam malik hospital, medan
PP22	Jeffry Prabowo	Etiology neonatal meningitis from csf specimen at sanglah general hospital
PP24	Ni Luh Putu Harta Wedari	First clinical case of <i>Exserohilum rostratum</i> infection in indonesia
PP30	Yuani Setiawati	The positive impact of the compliance in the use of prophylactic antibiotics for surgical site infection prevention in clean and clean-contaminated orthopedic surgeries in an academic hospital in Indonesia



Oral and Poster Presentation Schedule

1st International Conference on Infectious and Tropical Disease (1st ICITD 2021)

Day 2	30 November 2021
Room 1	

Session 1 : 09.40 – 10.40 (Western Indonesia Time, UTC+7)
Scope : Epidemiology and Clinical Manifestation (Oral)
Moderator : Dwi Wahyu Indriati, Ph.D

Abstract ID	Name	Title
OP05	Ign Joko Suyono	Distribution of sibling species of the members of the <i>Anopheles punctulatus</i> group of malaria vector in the jayapura regency, papua province, indonesia
OP06	Rina Kusumaratna	Evaluation of self-isolation for families during the covid-19 pandemic case study in meruyung depok
OP12	Yimam Getaneh Misganie	Progress and challenges towards elimination of mother to child HIV transmission in ethiopia
OP15	Sanggap Indra Sitompul	Challenge and breakthrough in the management of acute coronary syndrome during the covid 19 pandemic era
OP11	Siti Churrotin	Serotype shift of Predominant Dengue virus in Banjarmasin, Indonesia
OP33	Ni Njoman Juliasih	Preventive behavior transmission of covid 19 based on health belief Model



Oral and Poster Presentation Schedule

1st International Conference on Infectious and Tropical Disease (1st ICITD 2021)

Day 2	30 November 2021
Room 1	

Session 2 : 10.40 – 11.45 (Western Indonesia Time, UTC+7)
Scope : Epidemiology and Natural Product (Oral dan Poster)
Moderator : Dwi Wahyu Indriati, Ph.D

Abstract ID	Name	Title
OP23	Puji Astuti	The genome variants of sars-cov-2 viruses during the first year of the outbreak in kalimantan barat
OP32	Siti Qamariyah K	Update on the Molecular Epidemiology of HIV-1 in Indonesia
OP34	Rina Puspitasari	Bioactivity-guided Isolation of Dichloromethane Extract from <i>Artocarpus sericicarpus</i> Leaves against Hepatitis C Virus
PP07	Tri Wahono	The exposure of covid-19 vaccination information and vaccination hesitancy: a rapid survey in pangandaran's subdistricts
PP09	Chici Ayu Paramita	Molecular detection of <i>Entamoeba chattoni</i> in long-tail macaque (<i>Macaca fascicularis</i>) at alas purwo national park banyuwangi, east java
PP15	Andrew Jonatan	Clinical characteristic of covid-19 pediatric patients in indrapura field hospital, surabaya, indonesia
PP31	Andi Jayawardhana	An analysis of virulence factors gene protective antigenic (<i>pagA</i>) from <i>Bacillus anthracis</i> in severity, transmission factor in indonesia



Oral and Poster Presentation Schedule

1st International Conference on Infectious and Tropical Disease (1st ICITD 2021)

Day 2	30 November 2021
Room 2	

Session 1 : 09.40 - 10.40 (Western Indonesia Time, UTC+7)
Scope : Natural Product Medicine (Oral)
Moderator : Citrawati Dyah Kencono Wungu, dr., M.Si

Abstract ID	Name	Title
OP01	Nabila Ivana Firjatullah	Identification of phenolic compounds of <i>Allium cepa</i> L peel as sars-cov-2 inhibitor by molecular docking
OP07	Dadan Ramadhan Apriyanto	Anti-dengue virus activity of a crude extract from <i>Manihot esculenta</i> C. leaves
OP10	Kurnia Solehah	In vitro anthelmintic activity of papaya seeds (<i>Carica papaya</i> L.) tea against gastrointestinal trematodes in cattle
OP13	Junairiah	GC-MS analysis and antioxidant activity of <i>Piper betle</i> L . var nigra leaf extract
OP26	Hilkatul Ilmi	Antimalarial activity of cage xanthones from <i>Cratoxylum sumatranum</i> stem bark by Lactate Dehydrogenase (LDH) Assay
OP27	Lidya Tumewu	<i>Artocarpus sericarpus</i> leaves as potential sources of antimalarial substances
OP29	Puput Ade Wahyuningtyas	Potency of Tomato Paste Against Histopathological Liver of Mice Exposed to Borax
OP30	Adita Ayu Permanasari	Antiviral activity of <i>Artocarpus spp.</i> leaves against SARS-CoV2 and H3N2



Oral and Poster Presentation Schedule

1st International Conference on Infectious and Tropical Disease (1st ICITD 2021)

Day 2	30 November 2021
Room 2	

Session 2 : 10.40 – 11.45 (Western Indonesia Time, UTC+7)
Scope : Natural Product Medicine, Manifestation and Immunity
 (Oral and Poster)
Moderator : Suciati M.Phil., Ph.D., Apt

Abstract ID	Name	Title
OP22	Sylvia Anggraeni	Characteristic and clinical relevance of atopic dermatitis patients with positive skin prick test to house dust mites: a retrospective study
OP24	Gwanita Nawariantina	Adverse effects of shorter-term regimen (STR) for multidrug-resistant tuberculosis (MDR-TB) patient in adam malik general hospital
PP26	Defi Katika Sari	The potential microbes extracts against amebiasis determined by CS3 enzymatic assay
PP12	Lucia Tri Suwanti	Comparison of antioxidant effects of polysaccharides of mixed microalgae Isolates Glagah Beach Yogyakarta and East Java, Indonesia
PP23	Menul Ayu Umborowati	Clinical evaluation of narrowband ultraviolet B phototherapy combination with methotrexate for psoriasis vulgaris in Asian skin type: retrospective analysis from tertiary hospital in Indonesia
PP25	Anita Lidesna Shinta Amat	Effects of moringa (<i>Moringa oleifera</i>) on malondialdehyde (MDA) levels in aloxan induced white rats
PP28	Neny Purwitasari	Activity of <i>Vitex trifolia</i> L. leaves as inhibitor of influenza A (H5N1) viral neuraminidase
PP29	Metta Oktara	Diagnostic Challenge of Basidiobolomycosis In Indonesia: A rare case report
PP32	Dewi Setyowati	Prevalence of HBV Drug-Resistant Mutation in HBV/HIV Co-Infected Patients on Antiretroviral Therapy in Indonesia



Abstract of Oral Presentation

OP01

Identification of Phenolic Compounds of *Allium cepa* L Peel as SARS-CoV-2 Inhibitor by Molecular Docking

Nabila Ivana Firjatullah¹, Melinda Ayu Trinitia¹, Pradia Kumala Widiasti Prima¹, Rossy Trisna Mei Hayati¹, Laily Majidatul Munawaroh¹, Ika Puspita Dewi^{1*}

¹Preclinical Pharmacology Research Group, Faculty of Pharmacy, Universitas Jember, Jember, Indonesia

Abstract

Background: Coronavirus Disease 2019 is an acute respiratory disease caused by infection of SARS-CoV-2. The therapy of this disease requires high cost because of the lack of information about treatment strategy. Extensive research has been done to find the effective treatment for this disease, including from natural resources. *Allium cepa* L is one of the spices that have many health benefits. Its peel becomes waste even though rich with phytochemicals, including phenolics which have antiviral activity. This study is aimed to identify the phenolics compound of *Allium cepa* L peel and demonstrate its in-silico inhibitory activity to SARS-CoV-2 protein.

Methods: The methods used in this study were extraction of the phenolics compound followed by identifying with Thin Layer Chromatography (TLC) and molecular docking with the target protein MPro, spike, PLPro, and RdRp using Molegro Virtual Docker.

Results: The result from TLC showed that quercetin was detected at 254 nm UV with an R_f value of 0.163. The TLC-densitometric at a 435 nm wavelength showed its content in the sample was 19.01%. The in-silico screening result showed that eight phenolic compounds of *Allium cepa* L peel have a lower rerank score than the control when docked on the SARS-CoV-2 spike target, with the lowest rerank score is myricetin compared to oseltamivir and favipiravir control. The docking with RdRp revealed that quercetin has the best result of all phenolic compounds compared to the favipiravir.

Conclusions: The myricetin and quercetin of the *Allium cepa* L peel have the potential as an inhibitor of spike and RdRp protein of the SARS-Cov-2.

Keywords: *Allium cepa* L peel, SARS-CoV-2, phenolics compound, inhibitor, molecular docking

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Dentistry and its High Relationship with COVID-19 New Variants in Daily Dental Practice

Setyabudi Setyabudi¹, Dian Agustin Wahjuningrum^{2*}, Agung Sosiawan³

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²Department of Conservative Dentistry, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

³Department of Public Health, Faculty of Dental Medicine, Universitas Airlangga, Surabaya, Indonesia

Abstract

Background: COVID-19 first appeared in Wuhan City, China, at the end of 2019, and due to its rapid spread through airborne transmission by the World Health Organization (WHO), it was declared a public health emergency of international concern. There has been no specific therapy until now. Even more, COVID-19 mutated into two kinds of variants, namely: Variant of Concerns (VOCs) and Variant of Interests (VOIs). These variants have had a tremendous impact on all healthcare facilities due to their easily of transmission, especially in Dentistry where according to the Indonesian Medical Council (KKI), there were 29,510 dentists and 3,947 specialistic dentists infected with COVID-19. The prevalence of caries in Indonesia, according to Riskesdas, is still high at 88%, so dentists and dental specialists still have to work to reduce the prevalence of caries.

Methods: The method used in writing this review article is to search for material in national and international journals, websites, and books COVID-19 and the relationship with Dentistry.

Results: There is a relationship between Dentistry and COVID-19 which lies in Dentists' work procedures related to Splatter-Aerosol Generating Procedures (AGPs)-Dental Unit Waterlines (DUWLs) and Dentists' workplaces dealing with the mouth, oropharynx, and saliva where SARS-CoV-2 particles, the main causative agents of COVID-19, can be found in saliva in high copy number.

Conclusions: Dentistry is at high risk of being exposed to COVID-19 because of its AGPs-DUWLs and the close distance with the patient's oral cavity.

Keywords: AGPs, Aerosol, COVID-19, DUWLs, SARS-CoV-2, Splatter

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Effects of COVID-19 and Malaria Co-Infection on Disease Severity: A Systematic Review

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Abstract

Background: COVID-19 prevalence and mortality in malaria-endemic Africa is among the lowest in the world, suggesting possible protective effects between these two infections. However, co-infections of two pathogens with different pathophysiology may exert synergistic harmful effects. This systematic review aims to summarize the existing evidence and postulations on the effects of co-infections with Malaria and COVID-19.

Methods: We searched PubMed, ProQuest, Wiley Online Library, and Cambridge databases for peer-reviewed articles published up to July 2021 reporting real cases and information regarding co-infection with Malaria and COVID-19.

Results: Twenty-two eligible articles were identified. Some articles presented cases of co-infections, their manifestations and treatment, while others provided possible mechanisms in which malaria and COVID-19 co-infections could exert a protective or more harmful effect to the patients. A protective effect has been observed with faster recovery of co-infected patients, possibly due to the generation of cross-reactive antibodies. However, a net harmful effect has also been reported with co-infected cases showing more severe symptoms, possibly due to more severe pro-inflammatory and pro-coagulopathy reactions. Most articles highlighted the importance of a proper diagnosis since their symptoms are quite similar

Conclusions: As per the findings and available studies, co-infections with Malaria and COVID-19 may elicit both protective and harmful effects, and the exact mechanism of interplay between these two infections is yet unknown. Further research observing a larger number of cases and closer investigation on the immunology of this co-infection is highly recommended, and would be beneficial to the handling of COVID-19 pandemic in malaria-endemic regions

Keywords: COVID-19, malaria, co-infection

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The Relationship Knowledge and Action of Mother's Behavior Towards Covid-19 Prevention Effort at Pacung Asri Housing, Belalang Village, Tabanan Regency, Bali

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Abstract

Background: Covid 19 Pandemic the public behavior is more focusing on health, washing their hand, wearing mask, and bringing their own sanitizer when they going outside. The alternative policy is moother to greatly prevent COVID 19. The phenomenon took place on Pacung Asri housing Belalang village Tabanan Bali District, found that several mothers didn't have good behavior to prevent COVID 19 such as not wearing a mask when going out of the house, still traveling outside the city even though the area is a red zone, gathering with many people and not washing hands when entering the house after returning from traveling. The purpose of this study was to analyze the correlation between the level of knowledge with mother's actions to prevent COVID 19.

Methods: The design of this research was correlation study with cross sectional time approach. The population were 34 respondents were used simple stratified random sampling. The variable this study was behavior with questionnaire.

Results: Using Statistical analysis ASDPP, the result of the study showed that good knowledge respondents (53%) and respondents had less action in preventing COVID-19 (59%). The relationship between the level of of knowledge and the action by Spearman Rank Correlation Study with p value = 0.692 and r value + 0.070.

Conclusions: The result of study showed very low relationship and positive direction, which means higher level the mother's of knowledge, the better mother's action in preventing COVID-19. The results of this study as input for the head of the neighborhood in Pacung Asri housing area could cooperated with the Kediri III public health center and Belalang village health worker in provided information and educational activities balanced with repeated practice methods it becomes a habit the community to Applay clean and healty lifestyle and health protocols to prevent COVID 19.

Keywords: Knowledge, to prevent COVID 19, Health education

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Distribution Of Sibling Species Of The Members Of The *Anopheles punctulatus* group Of Malaria Vector In The Jayapura Regency, Papua Province, Indonesia

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Abstract

Backgrounds: The distribution of sibling species of the members of the *Anopheles punctulatus* group for Northern Australia, Papua New Guinea (PNG), Solomon Islands and Vanuatu has been well recognized. However, there is no much information regarding the spread of this group's species in islands in the South Pacific and Papua (Indonesia). Vector control mainly relies on the proper identification and distribution of vector species exists in a particular area. The present study was carried out to identify the distribution sibling species of the members of the *An. punctulatus* group in Jayapura Regency, Papua.

Methods: The study was undertaken in nine villages from seven districts of Jayapura Regency, Papua. Determination of the species distribution was made using the data of morphological and molecular identification and the geographic coordinate data obtained using GPS.

Results: Distribution of the sibling species is found in coastal and remote areas. *An. farauti 4* is found only in remote areas and *An. farauti s.s* is found only in coastal areas while *An. koliensis* and *An. farauti 2* can be found both in remote and coastal areas. *An. farauti s.s*, *An. farauti 2* and *An. koliensis* live sympatrically in Tablasupa near coastal areas. *An. farauti 2*, *An. farauti 4* and *An. koliensis* live sympatrically in Maribu which is a remote area.

Conclusions: There are four sibling species of the members of the *An. punctulatus* group found in Jayapura Regency : *An. farauti s.s*, *An. farauti 2*, *An. farauti 4* and *An. koliensis*. Distribution of the sibling species is found in coastal and remote areas.

Keywords: Distribution, sibling species, *An. punctulatus* group, Jayapura Regency

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Evaluation of Self-isolation for Families during the Covid-19 Pandemic Case study in Meruyung Depok

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Abstract

Background: The Indonesian government issuing various health protocols to break the chain of high number of positive cases and transmission of Covid-19. One of the protocols is to perform self-isolation at home or at the hotel or shelter houses or health facilities depending on severity of diagnose. Due to that reason, government issues various technical criteria requirements that should be met if the family at community wants to self-isolation at their home. This study aims to evaluation the readiness of the family if they have to carry out self-isolation at home based on internal and external factors

Methods: An observational and cross-sectional approach of data from the PDK3MI region-3 taken by cluster random sampling at *Meruyung* sub-district, *Limo* District, *Kota Depok* from March-June 2020, among 1169 household. The questionnaire consists of internal (age, gender, case category, comorbid) and external (home conditions and location) factors. Analysis of descriptive and self-isolation readiness was performed by using scoring of internal and external factors.

Results: Internal factors were gender (female 53%, male 47%), age (66% aged 60+ compare to < 60 years old), case category (3% suspect cases, 4 % travelers, 93% was non-confirmation cases), comorbid status (32%). External factors at this sub-district were one of densely populated area with 19% good criteria. Based on scoring family for self-isolation, only 29.5% was readiness.

Conclusions: Most of the inhabitant of densely populated area at *Meruyung* as an urban sub-district, Depok was not ready if they had to self-isolation at home.

Keywords: self-isolation, home, Covid-19 pandemic

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Anti-Dengue Virus activity of a crude extract from *Manihot esculenta* C. leaves

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Abstract

Background: Dengue virus infection can cause Dengue Hemorrhagic Fever (DHF), which Case Fatality Rate (CFR) due to DHF being more than 1% categorized as high. There is no specific therapy for DHF currently used. Therefore, an alternative treatment for Dengue virus infections is needed. In this study, we examined the antiviral activity of crude extract from *Manihot esculenta* leaves against Dengue virus.

Methods: : *Manihot esculenta* leaves were originated from Cirebon, West Java. The crude extract was tested in vitro against dengue virus serotype 2 (DENV-2) strain NGC using Huh7it-1 cell line.

Results: The *Manihot esculenta* crude extract exhibited anti-Dengue activity with a 50% effective concentration (EC₅₀) of < 10 µg/ml without cytotoxicity. A time-of-addition study demonstrated that the crude extract exerts anti-Dengue activity at both the entry and post-entry steps.

Conclusions: Our findings suggest that the *Manihot esculenta* crude extract may be a candidate of the add-on therapy for Dengue virus infection.

Keywords: *Manihot esculenta* leaves, Dengue Virus, anti-Dengue virus activity

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Evaluation of Bronchoscopy in the Diagnosis of Mycobacterium Tuberculosis Complex Species Infection

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Abstract

Backgrounds: Pulmonary tuberculosis is defined as an active chronic infection of the lungs and still be a public health problem globally. Mycobacterium tuberculosis and Mycobacterium bovis are members of the Mycobacterium tuberculosis complex (MTBC) which have similar identical nucleotides with different virulence, and it is difficult to determine the type of Mycobacterium tuberculosis complex (MTBC) species just by conventional test. Furthermore, the Xpert MTB/RIF test cannot differentiate MTBC, and the culture test takes a long period of time to detect the Mycobacterium. This study aims to evaluate the role of bronchoscopy in diagnosis of the MTBC species infection.

Methods: The patient was diagnosed with pulmonary tuberculosis based on AFB sputum, chest X-ray, Xpert MTB/RIF sputum test, and was eligible to participate in the bronchoscopy intervention. The BAL fluid of PCR analysis was used for the identification of MTBC species using RD9 and TbD1 primers to determine M. tuberculosis Beijing strain and M. bovis strain BCG, respectively. Homology analysis was conducted using the BLAST program.

Results: Out of the 30 cases, M. tuberculosis Beijing strain and M. bovis strain BCG 24 (80.0%) and 6 (20.0%) were identified in BAL fluid, respectively. There was a significant difference between Xpert MTB/RIF and PCR method. The ulcerative type of bronchoscopy findings was significantly difference in MTBC species ($p < 0.05$) and there was no macroscopic BAL fluid difference ($p > 0.05$).

Conclusions: Bronchoscopy was useful in determining the diagnosis of tuberculosis in human and the analysis of BAL fluid by PCR method, which helps in the identification of the MTBC species quickly and accurately.

Keywords: Bronchoscopy; Mycobacterium tuberculosis, pulmonary tuberculosis

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Therapeutic Communication Therapist In The Process Of Coronavirus Healing at Rumah Barito

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Abstract

Backgrounds: Efforts to heal Covid patients require various methods, both medical and non-medical. Therapeutic communication is an alternative that can be done by a medical practitioner or therapist in an effort to speed up the healing process. Therapeutic communication is a form of communication that is carried out in a planned and carried out to help the healing process. Rumah Barito carries out non-medical healing to help the healing process of Covid patients. During the covid pandemic, Rumah Barito organizes healing activities for COVID sufferers. The healing is done by Rumah Barito digitally and directs therapy. The focus of research is therapeutic communication carried out by the therapist to help the healing process of people with covid at Barito's house.

Methods: This paper uses communication theory, especially therapeutic communication. This research method uses descriptive qualitative research methods by using observation techniques, interviews, and documentation. The research subject is first, therapist and founder Rumah Barito, Ukky Soenardji. Second, people with Covid.

Results: The result shows that therapeutic communication is useful for helping the healing process. People with covid who took part in healing told that the benefits healing. They can better manage emotions so they are not stressed. The energy transfer during the healing session also made them feel better and more comfortable.

Keyword: Communication therapeutic, coronavirus, healing

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In Vitro Anthelmintic Activity of Papaya Seeds (*Carica papaya* L.) Tea Against Gastrointestinal Trematodes in Cattle

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Abstract

Background: The prevalence of cattle trematodosis in Bali and Nusa Tenggara in 2016 was 37.21%. The *Carica papaya* seeds contain metabolite compounds which were potential as an ethnoveterinary-based anthelmintic. This study aimed to determine the anthelmintic activity of papaya seed tea in various concentrations against time and the percentage of mortality of ruminant gastrointestinal trematodes.

Methods: The in vitro anthelmintic activity of papaya seeds tea was carried out on adult trematodes obtained from the Slaughterhouse in Majeluk, Mataram City. The worms were identified microscopically using 1% w/v acetocarmine and 10% w/v dried *Clitoria ternatea* flower. The worms were divided into 5 groups, the negative control (NaCl 0.9% w/v), positive control Albendazole 10% w/v, and treatment of papaya seeds tea (2.5, 5, and 10% w/v). Time and number of dead worms were recorded every 15 minutes for 5 hours, continued with the determination of the time and percentage of trematodes mortality. The difference in the average death time between experimental groups were analyzed statically using SPSS v.23 software.

Results: A hundred percent of *Paramphistomum spp.* mortality was obtained after 5 hours of exposure with papaya seed tea. The death time of *Paramphistomum spp.* for negative and positive control and also for the three treatments were 280, 35, 150, 170, and 160 minutes respectively. The results of ANOVA and *Post Hoc* LSD showed that papaya seeds tea at the three concentrations had a significant difference in death time for Albendazole 10% w/v ($p < 0,05$).

Conclusions: Papaya seeds tea has antitrematodal activity against *Paramphistomum spp.* in cattle, although its activity is still lower than Albendazole 10% w/v ($p < 0.05$).

Keywords: Trematodosis¹, papaya seeds², tea⁴, *Paramphistomum spp.*⁵

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Serotype shift of Predominant Dengue virus in Banjarmasin, Indonesia

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Abstract

Background: Particular Dengue virus (DENV) genotypes spreading throughout the region had their origin in Indonesia. Therefore, Indonesia is an important place to investigate the evolution and migration of DENV. As a part of dengue research in Indonesia, we conducted surveillance in Banjarmasin, the capital of South Kalimantan province. We conducted three surveys in Banjarmasin during (i) 2014, (ii) 2015, and (iii) September 2018 – February 2019. In this study, we focus on the NS5 region to determine serotype and detailed analysis of mutation. This study aims to isolate, amplify gene in NS5 region, analyze the sequence, and construct a phylogenetic tree of DENV.

Methods: Virus isolation was achieved by cell culture using c6/36 and Vero cells. The presence of viral antigens was examined by immunostaining with flavivirus group cross-reactive Mab. Viral RNA was extracted from the infected cells and subjected to reverse transcriptase-polymerase chain reaction (RT-PCR) using specific primers then directly sequenced. Genetyx version 10 (Genetyx, Tokyo, Japan) and MEGA5.2 software were type determination and phylogenetic analysis.

Results: A total of 26 isolates were obtained of 153 samples from dengue patients in Banjarmasin. We found that DENV type 4 was dominant in 2014 then replaced with DENV type 3 in 2015. While in 2018-2019, DENV type 2 became predominant.

Conclusion: The serotype shift of DENV might be associated with the increased number of total dengue cases in Banjarmasin from 2014 to 2015 and in early 2019. This indicates the need for continuous surveillance of circulating viruses to predict the risk of dengue infection.

Keywords: Dengue virus, Banjarmasin, serotype shift, NS5.

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Progress and Challenges towards Elimination of Mother to Child HIV Transmission in Ethiopia

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Abstract

Background: Mother-to-child transmission (MTCT) is significant in the Sub-Saharan African countries, where more than 80% of children living with HIV. The findings of this study highlighted progress towards the Elimination of Mother to child HIV transmission in Ethiopia.

Method: We conducted an HIV estimation projection using the SPECTRUM model to estimate MTCT from 2014 to 2021. We also used the Ethiopian Population-Based HIV Impact Assessment (EPHIA) data, a nationally representative, cross-sectional and household-based study. EPHIA data collection was from 19,136 adults aged 15 to 64 years. In this analysis, a descriptive and 2-level multilevel mixed-effect logistic regression model using STATA v16.

Result: MTCT decreased from 19.96% by 2014 to 14.21% by 2021. The transmission rate was heterogeneous among regional administrations in the country, ranging from 6.39% in Addis Ababa to 30.36% in Somalia. Treatment coverage for pregnant mothers improved from 68.2% by 2014 to 100% by 2021. Among HIV-positive childbearing mothers by 2018, 26.4% were breastfeeding while 60.5% ever breastfeed. The prevalence of HIV among women was to be 2.16%. Women living in Addis Ababa [AOR=8.9: 95%CI=12.68-29.67], Tigray [AOR=4.47:95%CI=1.68-11.93], and Dire Dawa [AOR=3.88: 95%CI=1.01-14.87] were at high risk of acquiring HIV compared to Somali. Moreover, women who attended college or University education [AOR=2.23: 95%CI=1.33-3.73] and who those attended secondary school [AOR=2.28: 95%CI=1.28-4.07] were at high risk compared to not educated. The highest wealth quintile had the odds of 2.28 [95%CI=1.45-5.44], followed by the fourth wealth quintile 2.25 [95%CI=1.30-3.90] in acquiring HIV compared to the poor.

Conclusion: Overtime improvement on MTCT and treatment coverage highlights the program's success in Ethiopia, while regional variation is yet a challenge. Considering region-specific intervention could be substantial. Further efforts on socio-economic and demographic factors contributing to HIV transmission could be a program priority.

Keywords: HIV/AIDS, Mother Child transmission, Ethiopia

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GC-MS Analysis and Antioxidant Activity of *Piper betle* L. var Nigra Leaf Extract

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Abstract

Background: The purpose of this research to determine the bioactive compounds and the percentage of antioxidant activity in chloroform and ethanol extracts of black betel leaf (*Piper betle* L. var Nigra).

Methods: Black betel leaf was extracted with chloroform and ethanol solvents. The content of bioactive compounds was carried out using the Gas Chromatography–Mass Spectrometry (GC–MS) method. The antioxidant activity was carried out using the DPPH method. The concentrations of black betel leaf extract used were 6.25, 10, 12.5, 15, 25, 35, 50, 75, 100, 125, 150, and 200 ppm. DPPH solution was added to each concentration and then the absorbance value was measured to determine the percentage of antioxidant activity of the sample.

Results: The results of this research showed that there were 22 bioactive compounds in the chloroform extract and 39 bioactive compounds in the ethanol extract. While the highest percentage of antioxidant activity in chloroform extract was found at a concentration of 75 ppm (91.60%) and in ethanol extract at a concentration of 50 ppm (91.29%).

Conclusions: Black betel contains various kinds of bioactive compounds and has the potential as an antioxidant

Keywords: antioxidant, bioactive compound, *Piper betle* L. var Nigra

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Evaluating The Relationship Of Changes in Ig G sRBD SARS CoV-2 Levels and Interleukin-10 with CT Value and Mortality in Convalescence Plasma Recipients of Severe-Critical Corona Virus Diseases 2019 (COVID-19)

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Abstract

Background: Convalescent plasma appears as an alternative therapy for the treatment of COVID-19 but its use is still controversial. The purpose of this study was to analyze the levels of IgG sRBD SARS CoV-2 and IL-10 with CT values and mortality before and after receiving convalescent plasma therapy in severe-critical COVID-19 patients.

Methods: This was an observational analytical study, with prospective cohort, conducted in June 2020-June 2021, using samples of COVID-19 patients (n=40) who were treated at isolation ward Dr. Soetomo Hospital Surabaya. Sequential sampling and examination of samples were carried out before administering convalescent plasma therapy and on the day+1, day+2, day+7 day after administration of convalescent plasma therapy. Examination of IgG sRBD levels using the CLIA method, IL-10 used the Cytometric Beads Array method, and PCR by rRT-PCR method.

Results: In 40 samples of this study, there was an increase in IgG sRBD levels after administration of convalescent plasma on days +1, +2 and +7 with a p value <0,05 and decrease in IL-10 levels on days +2 and +7 with a p value <0,05. There was no association between changes in IgG sRBD and IL-10 levels after convalescent plasma therapy and mortality. Increased levels of IgG sRBD did not correlate with the CT Value.

Conclusion: The levels of IgG sRBD SARS CoV-2 and IL-10 were not associated with mortality and CT values in convalescent plasma recipients of severe – critical COVID-19.

Keywords: IgG sRBD SARS CoV-2, IL-10, CT value, COVID-19, plasma convalescent, severe critical, mortality

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Challenges and Breakthroughs in the Management of Acute Coronary Syndrome during the Covid 19 Pandemic Era

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Abstract

Background: Until now, Coronavirus disease 2019 or severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has become a worldwide pandemic disease since March 2020, and contributed to the non-infectious diseases management, including in cardiovascular field. Management of cardiovascular disease, especially Acute Coronary Syndrome (ACS) during this Covid 19 pandemic is different from previous Covid 19 era. The purpose of this review is to find several challenges and breakthroughs in the management ACS during Covid 19 pandemic.

Methods: Literature articles are searched by using electronic databases such as Google scholar and PubMed.

Results: The challenges in the management ACS during Covid 19 are related to patients delay, health care delay, diagnostic delay, distinguish between primary ACS or Covid-AMI (Acute Myocardial Infarction). In Indonesia country, the situation is more challenging due to economic, geographic, logistic (PPE) and uneven distribution of health workers problems so that patient may not receive optimal treatment and may cause high morbidity and mortality. The breakthroughs are preparing new or modified guidelines include how to manage STEMI-ACS based on pharmacologic and invasive strategy and Non STEMI based on level category: low, intermediate, high risk or very high risk and keep adequate personal protection for health workers to prevent Covid 19 transmission. Role of telemedicine can be considered as effort to get the best management for patients with ACS by paying attention to the aspects of preventing Covid 19 transmission without reducing the quality of service.

Conclusions: The challenges of ACS management during Covid 19 pandemic can be solved by breakthroughs in modified treatment strategy based on ACS guidelines and telemedicine usage is helpful for clinicians and patients in order to get goal of therapy.

Keyword: ACS, Covid 19, guideline, telemedicine

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Phenotypic Grouping of Catheter-Associated *Escherichia coli* from COVID-19 Isolation Wards Using Hierarchical Clustering in Surabaya

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Abstract

Background: Moderate to critical COVID-19 patients may be indicated for urinary catheter use due to risk of immobility and ventilator or oxygen use. In intensive care units, 18-81.7% of all patients use urinary catheter. Almost all patients with urinary catheter suffered from bacteriuria in 30 catheter-days. Hospital associated isolate tracing is mainly performed using complex molecular tests that is not vastly available. This study aims to trace catheter associated urinary tract infection (CAUTI) isolates using common hierarchical clustering method that is vastly available

Methods: This is a descriptive study presenting collection of *Escherichia coli* culture data performed by dr. Soetomo Public Hospital microbiology laboratory from 26 March 2020- 31 March 2021. Hierarchical clustering were performed using statistical software using Ward's clustering method.

Results: There are 36 *E.coli* associated with CAUTI. Isolate biochemistry profile and minimum inhibitory concentrations profiles were clustered into 3 clades for each profile. A total of 9 cluster combinations were found. Cluster ID 1 was melibiose fermenters, Cluster ID 2 was non-Arginine utilizer, and Cluster ID-3 was Arginine utilizer. Cluster MIC A consist of third generation Cephalosporin resistant isolates, Cluster MIC C was multi-susceptible isolates. Chi-square test between cluster ID and MIC showed no significant differences between number of isolates per group (Chi square, $p = .430$, CI = 95%).

Conclusion: CAUTI associated *E.coli* is divided into 9 clusters. This indicates no cluster dominates the isolates, thus CAUTI is not caused by hospital transmission but normal flora carried by the admitted patient.

Keywords: Phenotypic, catheter, COVID-19, *Escherichia coli*,

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Case Report: Rifampicin-Resistant Tuberculosis with Co-Infection COVID-19

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Abstract

Background: COVID-19 has become a worldwide pandemic since it was announced on January 11, 2020. The cases are increasing all the time, even today, due to inappropriate health protocols and lax social distancing. COVID-19 poses a serious threat to the success of anti-MDR-TB therapy. However, little is known with regards to these two infections. The clinical presentations of the two diseases are quite similar. The diagnosis of tuberculosis in the current pandemic of COVID-19 required a high degree of suspicion to rule out the SARS-CoV-2 infection along with the infection of *Mycobacterium tuberculosis*. Lack of knowledge of the management of these two diseases is associated with poor outcomes.

Case Description: We describe a case of a patient with pulmonary RR-TB and COVID-19 in Ulin Hospital, Banjarmasin, which shows overlapping symptoms as well as an overview of the flow of TB diagnosis in COVID-19 and its management.

Conclusions: Plan triage to differentiate MDR-TB patients from coinfecting patients to ensure that MDR-TB patients and service providers are protected from nosocomial transmission of COVID-19. Thus, the present case will serve as a tool to help clinicians handle similar cases.

Keywords: Rifampicin-Resistant Tuberculosis; SARS-CoV-2; COVID-19

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Characteristics of Rifampicin-resistant in Tuberculosis new and discontinuous treatment cases in the Sanglah General Hospital

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Abstract

Background: Drug-resistant Tuberculosis is a major problem in the prevention and eradication of Tuberculosis (TB) in the world. Multidrug-resistant Tuberculosis (MDR-TB) is a TB disease caused by *Mycobacterium tuberculosis* (MTB) which is resistant to rifampicin and isoniazid treatment. WHO uses five categories to classify cases of drug-resistant TB: isoniazid-resistant TB, rifampicin resistant tuberculosis (RR-TB) and MDR-TB, plus pre-extensively drug-resistant TB (pre-XDR-TB) and extensively drug-resistant TB (XDR-TB). Globally in 2020 there was an increase in rifampicin-resistant TB cases from 50% (1.7/3.4 million) in 2018 and then increased to 61% (2.2/3.6 million) in 2019 of which 132.222 cases of MDR/RR-TB. The aim of this study was to describe the development of the incidence of rifampicin-resistant TB in new and Tuberculosis discontinuous treatment cases in the Sanglah General Hospital.

Methods: Data on new cases of TB and TB discontinuous treatment were taken from the results of a retrospective Gene-eXpert examination for 3 years, from July 1, 2018 to June 30, 2021 in the Sanglah General Hospital. Data were collected and analyzed using SPSS 25.

Results: The results obtained are incidence of rifampicin resistance in patients with TB discontinuous treatment (14.9%) is higher than TB new cases with rifampicin resistance (3.4%). Of all TB patients who were resistant to rifampicin, it turned out to be 100% experienced by patients with pulmonary TB.

Conclusions: The percentage of the incidence rifampicin-resistant TB in the Sanglah General Hospital still has not decreased, this is a problem that must be overcome.

Keywords: *Mycobacterium tuberculosis*, Rifampicin-Resistant TB, TB Treatment

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Antimicrobial Susceptibility Pattern of *Streptococcus suis* Isolates From Clinical Specimen In Sanglah General Hospital, Denpasar, Bali

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Abstract

Background: *Streptococcus suis* is gram positive bacteria that causes emerging zoonotic disease. It causes outbreaks in some countries including China, Vietnam, Thailand, and Indonesia totally more than 1600 cases worldwide. There were 44 cases of *Streptococcus suis* meningitis in Sanglah General Hospital Denpasar, Bali during 2014-2017. Antimicrobial resistance of *S. suis* may become a threat recently. Based on the study in Thailand, 100% of human isolates are resistant to tetracycline, 81,5 % resistant to clindamycin and azithromycin, and 70,4 % resistant to erythromycin, unfortunately, there is no available data in Indonesia. Therefore, we conduct a study to describe antimicrobial susceptibility pattern of *S. suis* isolates in Sanglah General Hospital, Denpasar.

Methods: We obtained 55 data from VITEK 2 GN card automatic system (BioMérieux®) results from June 2016 to June 2021 in Sanglah General Hospital, Denpasar, Bali, Indonesia

Results: The result showed that 55 isolates (100 %) were sensitive to Benzylpenicillin, Ampicillin, Cefotaxime, Ceftriaxone, Levofloxacin, Vancomycin, and Linezolid, 54 (98,2%) were sensitive to Erythromycin, and 53 (96,4%) were sensitive to Clindamycin. Of 55 isolates, 100 % were resistant to Tetracycline.

Conclusions: All of the isolates from Sanglah General Hospital are remain sensitive to antibiotics that cross the blood-brain barriers such as Ceftriaxone, Cefotaxime, and Ampicillin.

Keywords: Antimicrobial Susceptibility, *Streptococcus suis*, Zoonotic Disease,

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Neutrophil to Lymphocyte Ratio Compared to IL-6 to IL-10 Ratio as Severity and Mortality Predictor of COVID-19.

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Abstract

Background: Cytokine storm are usually happen in COVID-19 patients. We need to analyse markers that can predict severity and mortality of hospitalized COVID-19 patient.

Methods: We include adult COVID-19 patients that hospitalized in Universitas Airlangga from March to August 2021. We check Complete Blood count (CBC) and serum level of Interleukin (IL-6 and IL-10) using Enzyme-Linked Immunosorbent Assay (ELISA) during admission. We exclude tuberculosis, interstitial lung disease (ILD), asthma, Chronic Obstructive Pulmonary Disease (COPD), HIV and pregnant.

Results: We performed 48 adult patients (mean 50 (SD 11.4) years old), 50% was male, 77% still live. Average of laboratory tests: leucocyte is 7.893 (SD 3.090) mg/dl, Neutrophil to Lymphocyte ratio is 6.69 (SD 5.63), IL-6 is 68.958 (SD 114.22) pg/ml, IL-10 is 100.752 (SD 49.680) pg/ml and IL-6 to IL-10 ratio is 0.824 (SD 1.274). The samples were grouped to mild-moderate (n=25; 52%) and severe-critical (n=23; 48%). Length of stay was 13.06 (SD 7.311) days and about 22.91% of samples were dead. Severity of COVID-19 related to leucocyte (r=0.301; p=0.019), neutrophil (r=0.314; p=0.015), lymphocyte (r= -0.368; p= 0.005), NLR (r= -0,334; p= 0.010) but not related to IL-6, IL-10 and IL-6/IL-10. Mortality of COVID-19 related to leucocyte (r= 0.331; p= 0.042), lymphocyte (r= -0.297; p=0.020), IL-6 (r= 0.249; p=0.044).

Conclusion: Severity of COVID-19 related to leucocyte, neutrophil, lymphocyte and NLR but not related to IL-6, IL-10 or IL-6/IL-10. Mortality of COVID-19 related to IL-6, leucocyte and lymphocyte count but not related to NLR and IL-10 or IL-6/IL-10.

Keyword: Severity, Mortality, NLR, Interleukin-6, Interleukin-10, COVID-19, Infection Disease

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Multi-Drug Resistant Organisms among Bacteremia Patients in Dr. Soetomo General Academic Hospital Surabaya during COVID-19 Pandemic

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Abstract

Background: Multidrug-Resistant Organisms (MDROs), are emerging worldwide and associated with severe clinical outcome, moreover if systemic infection occurred. During the pandemic era of COVID-19, there was limited information about bacteremia caused by MDRO, as it possibly contributes in increasing mortality rate of COVID-19 patients. This study aims to determine the bacteremia rate caused by MDRO among COVID-19 and non-COVID-19 patients during pandemic.

Methods: A hospital-based retrospective observational study was conducted in Dr. Soetomo General Academic Hospital from April to December 2020. All hospitalized patients with positive-blood cultures were included and analyzed in this study. Confirmed COVID-19 patients were compared to non-COVID-19 patients during the same period.

Results: A total of 1542 isolates were obtained from patients' blood cultures, which 483 (31,3%) isolates from COVID-19 patients and 1059 (68,7%) from non-COVID-19 patients. The incidence rate of MDRO is 57/483 (11,80%) in COVID-19 compared to 158/1059 (14,91%) in non-COVID-19 group ($p=1,01$). There is a significant difference in the distribution of MDRO types among the two groups ($p=0.001$). The highest prevalence of MDRO isolates in the COVID-19 group was carbapenem-resistant *Acinetobacter baumannii* (CRAB) 28/483 (5,79%) while in non-COVID-19 group was extended-spectrum β -lactamase (ESBL)-producing *Enterobacterales* 104/1059 (9,82%). In COVID-19 group, *Acinetobacter baumannii* shows high resistance rate with 28/32 (87,5%) isolates were CRAB and 18/39 (46,15%) of *Enterobacterales* isolates were ESBL-producing.

Conclusions: High resistance rate of MDRO, CRAB (87,5%) particularly, among COVID-19 patients has placed a great concern and this emergence requires actions to control these pathogens in hospital settings.

Keywords: bacteremia, MDRO, COVID-19, CRAB

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Characteristic and Clinical Relevance of Atopic Dermatitis Patients with Positive Skin Prick Test to House Dust Mites: a Retrospective Study

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Abstract

Background: Atopic dermatitis (AD) is a multifactorial, chronic-relapsing inflammatory skin disease that could impair quality of life. House dust mite (HDM), as the most frequent aeroallergen in Asia, has been shown as a precipitating factor that exacerbates AD. This study aims to analyze the characteristics and clinical relevance of AD patients with HDM allergy.

Methods: This study was a retrospective study of 50 patients with AD who had tested for skin prick test (SPT) of HDM, shrimp, chicken, and cow's milk allergens in Dermatology and Venereology Outpatient Clinic at Dr Soetomo General Academic Hospital, Surabaya, Indonesia (2016-2020). The subjects were divided into 2 groups, subjects with positive and negative SPT results of HDM.

Results: Thirty-six out of 50 subjects (72%) showed positive SPT results on HDM allergens. There were significantly different results between 2 groups: atopic history ($p=0.000$) (consists of allergic rhinitis ($p=0.004$) and AD ($p=0.029$)); precipitating factor ($p=0.042$) (consists of food ($p=0.045$), and HDM ($p=0.021$)); positive SPT results of shrimp ($p=0.030$), and cow's milk ($p=0.047$); chronically-relapsing dermatitis ($p=0.016$); immediate skin test reactivity ($p=0.000$); and raised serum IgE ($p=0.018$). There was no significant difference of AD signs and symptoms between the groups. The clinical relevance of the HDM allergy history from anamnesis and results of the HDM SPT was 60.0%. Forty percent of the subjects misrecognized their allergies.

Conclusions: There were several distinguishing characteristics that tended to be present in AD patients with positive SPT to HDM. Clinical relevance result showed that allergen recognizing is still challenging.

Keywords: Atopic dermatitis, allergy, human & disease, house dust mites, skin prick test

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The Genome Variants of SARS-CoV-2 Viruses during the First Year of the Outbreak in Kalimantan Barat

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Abstract

Background: Approximately 4.7 million people died due to Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) infection that was called Coronavirus Disease 2019 (COVID-19). SARS-CoV-2 belongs to The Coronaviridae family, enveloped positive-sense RNA viruses with an RNA genome around 27 – 32 kb. As an RNA virus, it is frequently mutated to survive. These mutations occur over time that might lead to the emergence of new variants with different characteristics than the wild type. Surveillance of these mutations allow us to monitor and improve our understanding of which variants are circulating in Indonesia, especially in Kalimantan Barat.

Methods: Two positive samples of COVID-19 were obtained and selected based on The Polymerase Chain Reaction (PCR) results in October and November 2020. The Whole Genome of samples were then sequenced by using Next Generation Sequencing (ABI PRISM 3100). This research was under Ethical Clearance No. 3871/UN22.9/PG/2021.

Results: Genomic analysis exhibited 10 and 11 mutations in samples, respectively. Both samples have a mutation in spike protein D614G mutation. One of our samples also displayed more mutations in the spike protein which were A260V, S689R, and M731I. The mutation in spike protein of SARS-CoV-2 virus might influence their infection rate and also the strategy of escaping from the human immune system.

Conclusions: Mutation is a common strategy for RNA viruses that might change their characteristics. Our study found that the genomic changes in spike protein might influence their strategy of survival and infection in humans.

Keywords: SARS-CoV-2, Covid19, Whole Genome Sequencing, Mutation

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Adverse Effects of Shorter-Term Regimen (STR) for Multidrug-Resistant Tuberculosis (MDR-TB) Patient in Adam Malik General Hospital

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Abstract

Background: In 2018, shorter-term regimen (STR) was introduced as new regimen for treating MDR-TB Patient. Many patient that received this treatment experience mild to severe adverse effects. The aim of this study is to determine adverse effects of shorter-term regimen for MDR-TB treatment.

Methods: This is a descriptive study, subject were patients admitted at Adam Malik General Hospital with confirmed multidrug resistant TB (MDR-TB) between January 2017-December 2019. Data retrieved from medical record with a time span of Mei-September 2021. Inclusion criteria included age > 20 years, not pregnant, confirmed multidrug resistant TB based on Genxpert and MGIT test, and not extrapulmonal TB. Exclusion criteria included Pre-XDR-TB or XDR-TB patient, history of MDR-TB treatment > 1 month and history of failure to treat MDR-TB.

Results: Of 192 patient, 152 patient were matched inclusion and exclusion criteria. The majorities were male (70.4%) and female (29.6%). The > 60 year age group is 11.2% and < 60 years age group is 88.8%. 61.8% patient have comorbid. The adverse effects of drugs were; nausea and vomiting (42.2%), diarrhea (7.3%), gastritis (20.4%), hepatotoxicity (13.8%), nephrotoxicity (23%), hypokalaemia (42.2%), peripheral neuropathy (27.6%), myalgia (12.5%), arthralgia (12.5%), hallucination (0.7%), hearing disturbance (3.9%), prolonged QTc Interval (10.5%),

Conclusions: The most common adverse effects of shorter-term regimen are nausea and vomiting, and also electrolyte imbalance. The least adverse effect is hearing disturbance and hallucination.

Keywords: Adverse effects, Shorter-Term Regimen, MDR-TB

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Preliminary Study Revealed Denv3 as the Predominant Dengue Virus Serotype at Panembahan Senopati Hospital Bantul, Yogyakarta, During 2016 Outbreak

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Abstract

Background: Virus serotype shifting might increase the incidence of dengue and deteriorate its clinical manifestation. To date, the study that could explain the specific manifestation of a different serotype is still lacking. The current study was aimed to depict the predominant DENV serotype and its manifestation during the dengue outbreak in 2016 at Panembahan Senopati Hospital, Bantul.

Methods: In total 42 suspected dengue patients were recruited. NS1 and IgG/IgM rapid tests were performed to screen dengue cases. Virus isolation in C6/36 cell line was then performed for further analysis using Immunocytochemistry (ICC) assay. ICC was employed after several blind passages in Vero cell lines. Reverse transcriptase-polymerase chain reaction (RT-PCR) was performed to analyze the virus serotype.

Results: Only 14 out of 42 patients were found in NS1 positive, 7 of them were IgG/IgM positive, 6 were IgG negative but IgM positive, and 1 was IgG/IgM negative. Of patients who had NS1 negative, 22 were IgG/IgM positive, 2 were IgG negative but IgM positive, and 4 were IgG/IgM negative. Among 14 patients that RT-PCR confirmed NS1 positive, 12 patients. From those 12 patients, serotype analysis revealed that DENV3 infected 8 patients, 2 were DENV2, and 2 were co-infection of DENV3 and DENV1. The clinical manifestations were similar on each patient, indicating that there were no specific signs and symptoms regarding different dengue serotypes. However, DENV3 infection was manifested into more severe symptoms.

Conclusion: We concluded that in 2016, DENV3 became the predominant dengue virus serotype in Bantul, Indonesia.

Keywords: Serotyping, dengue virus, clinical manifestation

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Antimalarial Activity of Cage Xanthenes from *Cratoxylum sumatranum* Stem Bark by Lactate Dehydrogenase (LDH) Assay

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Abstract

Background: Malaria is one of the tropical diseases that face challenges to overcome. Parasite resistance to current antimalarial drugs was encouraged in the search for new antimalarial drugs from potential resources. The preliminary study showed antimalarial active fractions from dichloromethane extract of *Cratoxylum sumatranum* stem bark. The active antimalarial compounds from these fractions were important to be further isolated and identified.

Methods: Isolation of active compounds from active fraction was conducted by preparative-HPLC and obtained two compounds. Structure elucidation of compounds was taken based on ¹H, ¹³C NMR, and LCMS data compared to references data. Antimalarial activity determination of compounds was conducted by Lactate Dehydrogenase (LDH) assay.

Results: Antimalarial active compounds were identified as conchinchinosanton and conchinchinon D with IC₅₀ values of 1.75 µg/ml and 2.04 µg/ml, respectively. Those compounds were classified as very active antimalarial substances. More compounds were prospective to be isolated from other active fractions. Those active compounds might be developed as antimalarial candidates.

Conclusion: Cage xanthone compounds identified as conchinchinosanton and conchinchinon D were isolated from *Cratoxylum sumatranum* stem bark extract and exhibited antimalarial activity by LDH assay.

Keywords: *Cratoxylum sumatranum*, malaria, medicine, xanthenes

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Artocarpus sericarpus Leaves as Potential Sources of Antimalarial Substances

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Abstract

Background: Malaria is one of the tropical diseases that has become a health problem worldwide. The elimination of this disease faced various burdens, leading to the need for new antimalarial drugs. The history of antimalarial drugs discovery from plants was contributed in the searching of antimalarial drugs sources. *Artocarpus* genus is reported to have antimalarial properties. *Artocarpus sericarpus* is the potential to be explored as a source of antimalarial substances. This study aimed to obtain active antimalarial fractions from *A. sericarpus* leaves.

Methods: Extraction of *A. sericarpus* leaves was conducted by ultrasonic-assisted extraction method using hexane, dichloromethane, and methanol successively as solvents. The most active extract was fractionated by Vacuum Liquid Chromatography (VLC) using silica gel GF₂₅₄ as stationary phase and gradient solvents hexane, ethyl acetate, chloroform, and methanol. Extracts and fractions were tested for their antimalarial activity by Lactate Dehydrogenase (LDH) assay.

Results: Dichloromethane extract of *A. sericarpus* leaves was showed the highest antimalarial activity compared to hexane and methanol extracts with IC₅₀ values of 2.72±0.08 µg/ml, 23.96±0.06 µg/ml, and 23.39±0.05 µg/ml, respectively. The dichloromethane extract was further separated and obtained nine fractions. All fractions (F2-F9), except fraction 1 (F1), showed an IC₅₀ value of less than 10 µg/ml, which indicated active as an antimalarial. The TLC profile of active fractions indicated the flavonoids and terpenoids groups of compounds.

Conclusions: The dichloromethane extract of *A. sericarpus* leaves contains antimalarial active substances. The active compounds can be further isolated from the active fractions (F2-F9), possibly included in flavonoids and terpenoid compounds.

Keywords: *Artocarpus sericarpus*, leaves extracts, malarial, infectious disease, medicine

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Antibody Profile of *Mycobacterium leprae* L-ESAT-6 in Epitope Idalle Compared to PGL-1 in Patients and Household Contact from Leprosy Endemic Area in East Java Indonesia

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Abstract

Background: Leprosy patients in Indonesia is the third-largest in the world. The problem of high transmission is the difficulty of early detection of leprosy. At present, the diagnosis of leprosy is still based on the clinical sign. Some supporting diagnostic tools are developed, such as serological tests. The most widely used antigen for diagnostics is *Phenolic-glycolipid-1* (PGL-1), but some limitations of the antigen provide a challenge to find a potential candidate antigen representing specific *Mycobacterium leprae*. This research aims to study *Mycobacterium leprae* L-ESAT-6 (epitope IDALLE) compared to PGL-1 to leprosy patients and household contacts in leprosy endemic regions.

Methods: Analysis has been conducted to MB and PB leprosy patients and their families with a total of 173 respondents by testing Indirect ELISA of the L-ESAT-6 and PGL-1.

Results: In general, the profile of ELISA test anti PGL-1 vs L-ESAT-6 in all the patients don't have a significant difference, but in household contacts, with the Pearson correlation test, it can be concluded that there is a significant difference between PGL-1 and L-ESAT-6 (p-value = 0.049; $p < \alpha = 0.05$).

Conclusions: Healthy individuals who are exposed to *M.leprae* found high titers of antibody anti L-ESAT-6 and a lower profile of antibody anti PGL-1. It is assumed that the individual is relatively immune to *M.leprae*. So it can be concluded that L-ESAT-6 (AA11-36) can be used as a candidate diagnostic test, a predictor marker for healthy people living in endemic leprosy areas. In the future, it may be said that L-ESAT-6 can be used as a vaccine candidate, for it still needs further research.

Keywords: L-ESAT-6, Epitope IDALLE, PGL-1, *Mycobacterium leprae*, leprosy, patients, household contacts

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Potency of Tomato Paste against Histopathological Liver of Mice Exposed to Borax

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Abstract

Background: In the era of globalization, food industries use chemicals form of borax to reduce production costs. Borax is a free radical that is found in the form of ROS (Reactive oxygen species) in the body. The cell will fail to maintain its structure and function, so that the cell will experience necrosis. Kupffer cells will contribute if the liver occurs in the inflammatory process and chronic inflammation. Provision of antioxidants contained in tomatoes that lycopene can control free radicals. Therefore, a study of the effects of tomato paste (*Lycopersicon esculentum*) on histopathologic images of mice liver exposed on orally borax.

Methods: Thirty six healthy male mice with a body weight of 20 grams used in this study. The mice were divided into six treated groups, the first three days were as follows: P0 groups were given sterile aquadest as much as 0.1 ml/20 g BW/day, P1 was given borax as much as 5.6 mg/20 g BW/day, P2 was given tomato paste as much as 230 mg/20 g BW/day and (P3), (P4), (P5) is a group of preventive with tomato paste at each dose of 110 mg/20 g BW/day, 230 mg/20 g BW/day, and 350 mg/20 g BW/day. The next 14 days while (P3), (P4), (P5) groups were exposed with borax as much as 5.6 mg/20 g BW/day and (P0), (P1), (P2) were continuously treated as previously. On the 18th day, the mice were necropsy to take samples of the liver. The data of histopathology were analyzed with Kruskal-Wallis and continued with Man-Whitney. **Results:** The P1 group that was given borax treatment alone showed the level of necrosis was very high compared to all treatment groups. The administration of graded doses of tomato paste as a preventive against borax exposure showed that the P5 group showed a lower level of necrosis. The same results were also seen in the activation of Kupffer cells. This study shows that lycopene in tomato paste has high potential protection in the liver from borax. The activation of the Koepffer cell and IL-2 expression was decreased, supported by the elevation of necrosis rate. This result indicated that P5 gives the best protection in the liver exposed to borax. **Conclusions:** Lycopene in tomato paste has high potential protection in the liver from borax. It is shown that lycopene in tomato paste group P5 can reduce liver damage seen from the decreased necrosis and activation of the Kupffer cell.

Keywords: Lycopene, Borax, Medicine

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Antiviral activity of *Artocarpus spp.* leaves against SARS-CoV2 and H3N2

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Abstract

Background: A novel coronavirus, SARS-coronavirus 2 (SARS-CoV-2), was become an outbreak in February 2020 and continues to be a pandemic until now. This virus was spread widely worldwide and has infected more than 180 million. Another outbreak was H3N2 which spread in 2012 with 309 reported cases. This study screened three kinds of *Artocarpus* species against two types of virus, SARS-CoV 2 and H3N2, in vitro.

Methods: 12 extracts from three kinds of *Artocarpus* species i.e *Artocarpus heterophyllus*, *Artocarpus camansi*, and *Artocarpus altilis*, were screened for antiviral of SARS-CoV 2 and H3N2 virus. The analysis of SARS-CoV 2 inhibition was performed using Vero cell, and SARS-CoV 2 (Cs4859) was then measured qualitative through cytopathic effect score and quantitative by qRT-PCR. While analysis of H3N2 was identified using MDCK cell and H3N2 (V2 virus) then measured through hemagglutininase (HA) assay.

Results: Ten extracts were active to inhibit SARS-CoV 2 at the screening concentration of 30 µg/mL. The *A. heterophyllus* dichloromethane extract was active inhibit 100% SARS-CoV 2 growth with an Inhibition concentration (IC₅₀) value of <3 µg/mL. The minimum inhibition concentration (MIC) value H3N2 of 4 extracts from *A. heterophyllus* was 10 µg/mL, while 8 extracts of *A. camansi* and *A. altilis* > 100 µg/mL. The most active extract against H3N2 was dichloromethane extract of *A. heterophyllus* with MIC value 1 µg/mL.

Conclusions: The dichloromethane extract of *A. heteropyllus* was active as SARS-CoV 2 with IC₅₀ < 3 µg/mL and H3N2 with MIC 1 µg/mL.

Keywords: *Artocarpus* sp, SARS-CoV 2, H3N2

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Analysis of Covid-19 Vaccine Serosurvey in Surabaya, Indonesia

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Abstract

Limitation of vaccines now, there are priority groups who get the vaccine first, namely health workers and public officials and then the wider community. The Covid-19 Vaccine Serosurvey is to monitor the effectiveness of the vaccine after it is distributed. Analysis Covid-19 Vaccine Serosurvey Activity in Surabaya, Indonesia is expected that can determine the pattern of antibody titers in groups of people who get vaccinated with duration of 6 months observed at some time variation after administration of the first dose and second. This research will be conducted in Surabaya, East Java, Indonesia by involving some of the first priority groups to get the COVID-19 Vaccine, among others Health workers, Public Officers and other communities. On our stage 1 antibody examination was carried out qualitatively using the method ELISA GenScript SARS-CoV-2 Neutralization Antibody Detection Kit. Volunteer sample from 91 healthy people who have been vaccinated are collected with the composition: 38 people have received the Astrazeneca Dose 1 vaccine; 20 people have received the Sinovac vaccine Doses 1 and 33 people have received the Sinovac Dose 2 vaccine. Positive neutralizing antibody data is generated as much as 32% (12/38) in the Astrazeneca vaccine group Dose 1. While, 55% (11/20) in the group Sinovac vaccine Dose 1 and 52% (17/33) in the Sinovac Dose 2 vaccine group. Neutralization activity is higher in group with Sinovac dose 1 than Aztrazeneca dose 1, but group with Sinovac dose 2 is almost similar with dose 1.

Keyword: Serosurvey, Vaccine, Azstrazeneca, Sinovac, Neutralization

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Update on the Molecular Epidemiology of HIV-1 in Indonesia

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Abstract

Background: The HIV-1 epidemic has continued to grow in Indonesia; however, continuous updates on the epidemiology of HIV-1 in Indonesia remain challenging because it is the biggest archipelago in the world. Furthermore, the emergence of HIV drug resistance (HIVDR) has had a negative impact on the treatment of infected individuals.

Methods: In the present study, we performed HIV-1 subtyping and the detection of HIVDR in 105 HIV-1-infected individuals residing in various cities in Indonesia in 2018 - 2019.

Results: The results obtained identified CRF01_AE as the major epidemic HIV-1 strain, responsible for 81.9% of infection cases, followed by subtype B (12.4%), CRF02_AG (3.8%), CRF52_01B (1%), and a recombinants between CRF01_AE and CRF02_AG (1.0%). Major drug resistance-associated mutations against reverse transcriptase inhibitors were detected in 20% of samples.

Conclusions: These results suggest that CRF01_AE is a major HIV-1 strain in Indonesia, while CRF02_AG is emerging. The prevalence of HIVDR in Indonesia needs to be monitored.

Keywords: HIV-1 subtype, CRF01_AE, CRF02_AG, HIV drug resistance, Indonesia

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Preventive behavior transmission of covid 19 based on health belief Model

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Abstract

Introduction: Corona virus cases caused by Covid-19 disease in the world has reached 1.8 million people (Currently in writing). Efforts to break the chain of corona virus spread through health programs have been echoed by Indonesian government. The purpose of the study was to application of health belief model with preventive behavior transmission covid 19 at east Java Indonesia.

Method: Descriptive research design with cross-sectional approach, the population of people residing in Surabaya taken random sampling as many as 101 samples. The variables of this study are preventive behavior of health and transmission of covid 19, Data were collected with questionnaires circulated through google-form on what-aps group of colleagues, friends and friends. Analysis with linear regression.

Result: The transmission of covid 19 had a positive relationship with the perception vulnerability (b:0.97; 95% CI: 0.87 to 1.06; $p < 0.01$), self-efficacy (b: 0.02; CI 95%: 0.00 to 0.05; $p < 0.05$), and cues to the transmission of covid 19 action (b:0,16; 95% CI: 0.08 up to 0.23; $p < 0.01$). There was a negative relationship between the transmission of covid 19 with the perception of Preventive Behavior (b:-0.13; 95% CI:-0.18 to 0.09-; $p < 0.01$). The linear-regression model showed that independent variables altogether contribute to 84.5% of the transmission of covid 19.

Conclusion: There are four component of health belief model associated with prevention behavior transmission of covid 19. Further research focuses on willingness and awareness of disconnection of the chain of transmission of covid 19.

Key word: Covid 19, health belief model, transmission, behavior

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Bioactivity-guided Isolation of Dichloromethane Extract from *Artocarpus sericarpus* Leaves against Hepatitis C Virus

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Abstract

Background: Hepatitis C virus (HCV) infection is still a global problem. Direct-Acting Antiviral Agents have been used as anti HCV therapy. However, this therapy is considered expensive, has side effects and resistance case was reported in some genotype. Therefore, it is necessary to develop new drug therapies that are safe, more effective, and affordable.

Methods: Among of ethanol, n-hexane, dichloromethane, and methanol extract of *Artocarpus sericarpus* leaves, the IC₅₀ value of dichloromethane extract was the most active as an anti HCV with value IC₅₀ value of 1.57±1.10 µg/ml. Isolation and identification was carried out in order to obtain anti-HCV active compounds. Bioactivity guided isolation was performed to obtain active anti-HCV compounds. Anti-HCV activity was evaluated by invitro culture cells of Huh 7it-HCV infected cells.

Results: Anti-HCV activities of subfractions at concentration of 100; 30; 10; 1; 0.1; 0.01 µg/ml were demonstrated that F3.3, F3.6, F3.7 possess strong activity against HCV JFH1a and revealed IC₅₀ value 15.78, 8.95, 32.74 µg/ml, respectively. The identification of subfractions were done by TLC and HPLC. The identification by TLC revealed the dominant orange and yellow spot after given H₂SO₄ 10% and heated 105°C for 5 minutes. Based on the UV spectra data by HPLC possess a dominant peak with a maximum wavelength in range 240-285 nm and 300-550 nm, which belong to flavonoid group compound characteristics.

Conclusions: These results indicate three subfractions have flavonoid group compound that active as anti HCV.

Keywords: Hepatitis C virus, *Artocarpus sericarpus*, Herbal medicine, Health.

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Abstract of Poster Presentation

PP01

Acute Limb Ischemia in a Patient with COVID-19 Infection and T2DM

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Abstract

Background: Coronavirus Disease 2019 is an infectious respiratory disease that is caused by a newly discovered organism, SARS-CoV-2. More than 4 million cases are documented with 138,000 deaths in Indonesia. Type 2 diabetes (T2DM) is one of the leading comorbid and give a greater risk to a severe case by 4-fold. During this pandemic, the incidence of vascular complications found to be increased, yet the success of revascularization is decreasing. The nature state of hypercoagulability in T2DM patients and coagulopathy caused by COVID-19 is predicted causing this founding.

Case Presentation: We present a case of 67-years-old diabetic male with a chief complaint of cough and shortness of breath. Patient was tested positive for COVID-19 and treated in the hospital. Throughout the care, the patient started to feel pain at the heel of his left feet escalating to the calf and began to look dark. Clinically patient was diagnosed with ALI, a heparinization therapy at 900IU/hr was given but not successful, patient then transferred to our hospital. On the physical examination, the lower left extremity was cold and necrotic. There was a loss in artery pulsation, sensory sensation and muscle weakness, confirming the diagnosis of ALI Rutherford class III. As the clinical viability of the limb has already been threaten, the patient is scheduled for an urgent thrombectomy and amputation.

Results: The surgery was successful, a 38 cm thrombus was extracted from the left femoral artery.

Conclusions: This case report shows that COVID-19 infection in patients with T2DM may cause a coagulopathy resulting in severe vascular complication. Monitoring the state of hypercoagulability is needed and proper management of the complication should be done.

Keywords: COVID-19, diabetes mellitus, acute limb ischemia, revascularization, coagulopathy

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Characteristics and Clinical Manifestations of Inpatient COVID-19 Patients at Dr Soetomo Hospital Surabaya, Indonesia

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Abstract

Background: The disease that is endemic and has become a global pandemic is covid-19 due to reports of thousands of cases. The pandemic is weighing on intensive care units with an influx of COVID-19 patients. The clinical manifestations of COVID-19 vary, diagnostic examinations and treatment also experience dynamic developments. This study aims to provide an overview of patient characteristics, clinical manifestations, comorbidities, therapy, and conditions when returning home from 130 COVID-19 patients who were hospitalized in the Isolation Room Dr Soetomo Hospital Surabaya.

Methods: The research data was obtained from hospital medical records for the period June to August 2021.

Results: The study found that men were more exposed to COVID-19 (71.5%) and 70% of patients worked as medical personnel. The age range of the majority of patients was more than 40 years (78.5%). The clinical manifestations of patients with COVID-19 are cough (44.6%), fever (40%), flu like symptoms (32.3%), swallowing pain (26.2%), anosmia (16.2%), shortness of breath (15,4%), nausea (14.6%), vomiting (13.8%), and diarrhea (0.9%). From 130 patients, 38 patients (29.2%) died, 84 patients (64.6%) recovered, and 8 patients (6.2%) went home at their own request. The highest mortality was found in the age range of more than 40 years (33.3%). It was recorded that 4 people chose intravenous immunoglobulin therapy.

Conclusion: The majority of COVID-19 sufferers are male, over 40 years of age, with cough symptoms, and the most comorbid hypertension, as well as mortality due to hypertension and the elderly. Better treatment is needed for COVID-19 sufferers.

Keywords: covid-19; characteristics, clinical manifestations; Dr Soetomo Surabaya

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An Analysis of Genetic Risk Factor (Chromosome 3 and 9) and Mutation of *Spike* COVID-19 in the Severity and Transmission Factor

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Abstract

Background: The world was shocked by novel coronavirus disease-19 (nCoV-19) for the first time in Wuhan City and it was declared as a pandemic on 20th March 2020 by World Health Organization (WHO). There are still some problems related to COVID-19, especially in the appearance of both Variant of Investigations and Concerns caused second or third wave. These variants related to the *Spike* glycoprotein mutation and genetic risk factors on chromosome number 3 and 9.

Methods: This method of writing article is based on the literature study from both international and national journal sources that relate to the COVID-19 and the risks of genetic factor and COVID-19 severity.

Results: The findings of this article review was COVID-19 severity related to the genetic risk factor namely in chromosome 3p21 and 9 which its relationship is reciprocal in the level of C5a and SC5b-9 on the ABO groups with the worst severity was on A blood group. A blood group had higher increase of ferritin that reflected the severity of the disease and exaggerated complement activation leading to severe lung disease namely acute respiratory distress syndrome (ARDS). In spite of genetic risk factors, one of the mutations in D614G *Spike* glycoprotein resulted in changing aspartic acid into glycine also increased the transmission factor even though in the vaccinated persons through neutralizing antibodies of vaccine induced antibody.

Conclusions: Severity and increased transmission in COVID-19 related to both genetic of host risk factors and mutation of *Spike* SARS-CoV-2 glycoprotein which their relationship was reciprocal.

Keywords: COVID-19, Genetic risk factors, Variant of Concerns, Variant of Investigations, Spike glycoprotein mutations, complement activation

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The Exposure of Covid-19 Vaccination Information and Vaccination Hesitancy: A Rapid Survey in Pangandaran's Subdistricts

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Abstract

Background: Covid-19 vaccination still acts as the most effective way to combat the Covid-19 pandemic. Data about the exposure of Covid-19 vaccination information and vaccination hesitancy is essential for developing effective health promotion to boost vaccination coverage and successfully implementing population immunization. Therefore, a study has been performed in order to have a thorough grasp of existing vaccination sentiment and its potential influencing factors

Methods: This study is a cross sectional rapid survey conducted in August 2021. It was held in subdistrict Parigi, Sidamulih and Mangunjaya of Pangandaran District, West Java Province. There were total of 915 individual sample participated in this study. Data was collected using an electronic questionnaire. The collected data were analyzed, and chi square was used in bivariate analysis. The data collected consisted of their willingness to have vaccination and the reason why they do not want to have vaccination.

Results: It was found that 35.20% of respondents have not got vaccination and stated that they do not want to be vaccinated. 28% have not got vaccination and stated that they want to be vaccinated, 19.7% of them were already vaccinated twice, and the rest of them (17.2%) were already vaccinated once. Vaccination preference in those four groups were significantly different from each other statistically. Most of the reason why people do not want to get vaccination is that because they afraid of the side effects.

Conclusions: Community vaccination willingness in Parigi, Sidamulih, and Mangunjaya subdistrict was varied, yet most of the community have not got vaccination and hesitant to be vaccinated because they were afraid of the side effects.

Keywords: Covid-19, vaccination, hesitancy, rapid survey, Pangandaran

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Molecular Characterization of *Entamoeba chattoni* in Long-Tailed Macaque (*Macaca fascicularis*) at Alas Purwo National Park Banyuwangi, East Java

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Abstract

Background: Alas Purwo National Park (APNP) is one of the wonderful lands in Indonesia with a high number of tourists for recreation, wildlife, historical, cultural, and spiritual activities. *Macaca fascicularis* is one of the animals that often interact with tourists. Wildlife-related tourism can affect animal health, behavior and promote parasite transmission. *Entamoeba chattoni* is a parasite that can cause diarrhea in human and nonhuman primates (NHP). Morphology of *Entamoeba chattoni* may be confused with immature cysts of *Entamoeba histolytica*. The aim of this research is to molecular characterization of *Entamoeba chattoni* in long-tailed macaque (*Macaca fascicularis*) at Alas Purwo National Park, Banyuwangi. **Methods:** A total 100 fecal samples of long-tailed macaque from Alas Purwo National Park, Banyuwangi was purified with sugar flotation methods, then extracted the DNA using DNAzol. Molecular identification of *Entamoeba chattoni* using a primer that has been designed by Verweij et al. including Echattioni1 (5-AGG ATT TGT TTT ATA ACA AGT TC-3) and Echattioni2 (5-TAA ATA ACC TTT CTC CTT TTT CTA TC-3). Thermocycler PCR including 30s for predenaturation at 94°C, 30s for annealing at 55°C, 30s for extension at 72 °C, and 2 min for final extension at 72 °C with 35 cycles. **Results:** Morphological identification showed 82% (82/100) of the samples were positive. Furthermore, the determination species of *Entamoeba chattoni* using PCR showed that 90% (74/82) were positive with a visible band of 215 bp. Sequencing result with BLAST NCBI showed that isolate PURWO P1 has homology and is close with isolate (AF149912.1), (FR686389.1), and (AB749459.1). **Conclusions:** long-tailed macaque (*Macaca fascicularis*) at Alas Purwo National Park were infecting *E. chattoni*.

Keywords: Long Tailed Macaque, *Entamoeba chattoni*, Diarrhea, Public Health, Alas Purwo National Park,

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Comparison of Antioxidant Effects of Polysaccharides of Mixed Microalgae Isolates Glagah Beach Yogyakarta and East Java, Indonesia

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Abstract

Background: Indonesia is a country with a large marine environment and has a very high biodiversity of microalgae. Microalgae have been widely studied and used as ingredients for food and health. Previous research has identified and grown mixed microalgae from Glagah Beach, Yogyakarta and several beaches in East Java. The polysaccharides of the two microalgae have never been studied. This study aims to extract polysaccharides and assess the antioxidant activity of polysaccharides from the two microalgae from Indonesia.

Methods: Polysaccharides from three microalgae: *Spirulina platensis*, a mixed microalgae Glagah and a mixed microalgae East Java were extracted by alkaline method. Extraction rate and protein and carbohydrate content of polysaccharides of each of microalgae were calculated. The antioxidant activity of polysaccharides was observed using the DPPH assay method.

Results: The highest extraction rate was obtained from Glagah microalgae followed by *S. platensis* and East Java microalgae with values of 13.575%, 9.75% and 2.375% respectively. On the other hand, the carbohydrate content of the polysaccharides from Glagah microalgae was the lowest, followed by *S. platensis* and East Java microalgae, 1.2 mg/ml, 13.33 mg/ml and 21.925 mg/ml, respectively. The protein content in polysaccharides from Glagah microalgae was the highest, followed by East Java microalgae and *S. platensis* the lowest, 2.23 mg/ml, 1.01 mg/ml and 0.67 mg/ml, respectively. Based on the results of IC₅₀ values, the antioxidant activity of mixed microalgae polysaccharides from Glagah and East Java was included in the active/moderate category, 125.21 µg/ml and 127.11 µg/ml, respectively, while the antioxidant activity of polysaccharide *S. platensis* was low, 171.82 µg/ml.

Conclusions: In conclusion, Glagah and East Java Microalgae Polysaccharides have the opportunity to be promoted as health ingredients to overcome free radicals.

Keywords: Antioxidant activity, biodiversity, mixed microalgae, polysaccharides



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The Sensitivity of *Pseudomonas aeruginosa* to Ceftazidime and Ciprofloxacin from Wound-bed Swab Specimens collected during March to August 2021 at Sanglah General Hospital, Bali, Indonesia

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Abstract

Background: Antibiotic resistance is one of the most significant issues for physicians in providing sufficient therapy for infections caused by Gram-negative organisms such as *Pseudomonas aeruginosa*. Ceftazidime and Ciprofloxacin are the frequent drugs of choice for empirical therapy of *Pseudomonas* infection and both are known have a good penetration to soft tissue. This study aims to evaluate the sensitivity of *Pseudomonas aeruginosa* to Ceftazidime and Ciprofloxacin isolated from patients with wound infection.

Methods: This study is a cross-sectional study with a total sampling approach. Seventy-three *Pseudomonas aeruginosa* isolates were collected from inpatients with wound infection during March to August 2021 at Sanglah General Hospital, Bali, Indonesia. The isolates were collected by wound-bed swab. Bacterial identification and antibiotic sensitivity test were conducted by Vitek@2. The variables assessed in this study include age, gender, ICU/Non-ICU patient, and sensitivity of isolates to Ceftazidime and Ciprofloxacin.

Results: The median age of participants were 34 (0-81) years old. Most of the participants were female (50.70%) and admitted to the non-ICU ward (74.00%). The sensitivity to Ceftazidime and Ciprofloxacin were compared with result as follows, sensitive (50.7% vs 53.4%), intermediate (15.10% vs 5.50%), resistant (34.20% vs 41.10%).

Conclusion: The Ciprofloxacin tended to be more sensitive to the *Pseudomonas aeruginosa* infection than the Ceftazidime, although not statistically evaluated.

Keywords: Ceftazidime, Ciprofloxacin, Sensitivity, *Pseudomonas aeruginosa*

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Initial Systemic serum ACE2 as severity and mortality predictor of COVID-19

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Abstract

Background: Angiotensin-Converting Enzyme 2 receptor is keypoint to SARS-CoV-2 infection. We need to analyse serum ACE2 levels in predicting the severity and mortality of COVID-19.

Methods: Adults hospitalised COVID-19 patients from March to August 2021 were included in the study. We measured the ACE2 serum level using Enzyme-Linked Immunosorbent Assay (ELISA) before 72 hours after admission. We analysed the age, mortality, and severity according to clinical and radiological.

Results: A cohort prospect study in hospitalised was conducted in Universitas Airlangga Surabaya, Indonesia, from March 2021 until August 2021. Adult patients (18 to 70 years old) that agreed to join the research were signed the informed consent. We include all comorbidity except tuberculosis, HIV, interstitial lung disease, asthma and Chronic Obstructive Pulmonary Disease (COPD). The samples are 50.72 (12.05) years old, 52.56% was male, 37.27% was dead. According to the National Institutes of Health, we divided the samples study into two groups (mild-moderate and severe-critical). ACE2 serum of mild-moderate group was 1.51 (0.71) ng/ml and severe – critical 1.17 (0.64) ng/ml. Mortality of mild-moderate patients was 8.1% and 63.4% in severe–critical patients. No correlation between ACE2 and age ($p=0.94$) and mortality ($p=0.91$). ACE2 have a weak correlation with severity ($r=0.241$; $p=0.33$).

Conclusion: Systemic ACE2 serum was decreased in COVID-19 patients. ACE2 is related to the severity but does not correlate with age and mortality.

Keyword: COVID-19, Severity, Mortality, ACE2, Infection Disease

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Clinical Characteristic of COVID-19 in Pediatric Patients in Indrapura Field Hospital, Surabaya, Indonesia

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Abstract

Background: SARS-CoV-2 infects people of all ages. However, there were still limited researches that describe the characteristics of COVID-19 based on children's age group, nutritional status, and gender. To our knowledge, no such study was conducted in Indonesia.

Methods: We conducted a descriptive study with a retrospective observational approach. Data were taken from Indrapura Field Hospital's patients (May 2020 - August 2021). This study describes the baseline characteristics; Clinical symptoms, severity, and length of stay of pediatric COVID-19 patients based on age, nutritional status, and gender.

Results: There were 432 pediatric COVID-19 patients, 55.78% were male. The highest number of age groups were adolescents (67.82%). Wet cough is the common symptom of COVID-19. Most of the patients had mild symptoms (55.78%) and normal nutritional status (56.48%). A total of 71.99% of pediatric patients were hospitalized for <10 days. The most common comorbidity among patients was obesity (87.88%). There was no report of deaths of pediatric COVID-19 patients. Most patients in the age group of newborn-infant, toddler, and preschool, did not report any symptoms, while most patients in the age group of school-age and adolescent had mild symptoms of COVID-19. Each age group have different common symptoms, such as newborn-infants and preschool age groups experienced runny nose; Toddler age group experienced fever; School and adolescent age groups experienced wet cough

Conclusion: Children tend to experience mild or asymptomatic of COVID-19. Each age group of pediatric patients has its clinical characteristics of COVID-19. The cure rate for pediatric COVID-19 patients is high.

Keywords: Children, Clinical Characteristic, COVID-19, Pediatric Patients

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Characteristics of COVID-19 Patients with Gastrointestinal Manifestations: A study from Aceh Indonesia

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Abstract

Background: COVID-19 was initially thought to be a respiratory disease but growing evidence is identifying potentially serious systemic consequences involving major organs, including the digestive system. The SARS-CoV-2 virus can cause significant systemic disease and involve the GI tract, liver, bile duct and pancreas by a mechanism involving cell entry by ACE 2 and TMPRSS2 receptors, which are dysregulated. This study aims to determine the characteristics of COVID-19 patients with gastrointestinal manifestations, especially in Banda Aceh

Methods: An observational study with cross sectional method, data collection was carried out by conducting interviews, simple blood and stool examinations from COVID-19 patients who had gastrointestinal complaints. We excluded samples who had complaints or were previously diagnosed with gastrointestinal problems.

Results: we collected 30 samples and found 63.3% men of which 63.3% had mild symptoms, 20% moderate and 16.7% severe symptoms. The most frequent manifestations were anorexia and nausea (93.3%), followed by bloating in 86.6%. All samples still had symptoms even though they had been declared cured of COVID-19 with the most frequent manifestations being nausea and bloating. Stool examination showed 7 people (23.3%) had occult blood.

Conclusions: Upper gastrointestinal symptoms were reported more frequently in COVID-19 patients and the most frequent symptoms were anorexia and nausea.

Keywords: COVID-19, gastrointestinal, anorexia

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Clinical Factors Determine the Severity of Covid-19 in Adam Malik General Hospital, Medan

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Abstract

Background: Several studies have shown a correlation between laboratory values and comorbidities with the severity of COVID-19. The aim of this study was to find factors related to the severity of COVID-19 patients in Adam Malik Hospital.

Method: This is a descriptive study with cross sectional design. The subject of this study were taking from secondary data of medical record in patients with COVID-19 from December 2020 to April 2021. The inclusion criteria were patients diagnosed with COVID-19 based on RT-PCR while the exclusion criteria was an incomplete medical record. Statistical analysis was carried out with few statistical test including Kruskal Wallis Test, Kolmogorov test, and Chi Square according to data category.

Result: Total 110 subjects were enrolled in this study. The majority of subjects were male (55.45%) with age range >40 years old (66.36%). In this study, the laboratory value of lymphocyte count, N/L ratio, D-dimer, procalcitonin, ferritin, fibrinogen and CRP were significantly correlated with the severity of COVID-19. Also, few comorbid were statistically correlated with the severity of COVID-19 including hypertension, diabetes mellitus, coronary artery disease, renal disease, and HIV.

Conclusion: Several laboratory findings and comorbid including lymphocyte count, N/L ratio, CRP, procalcitonin, D-dimer, fibrinogen, ferritin, diabetes mellitus, hypertension, HIV, coronary disease and renal disease were correlated with the severity of COVID-19.

Keywords: COVID-19, laboratory value, comorbid, severity

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Aspergillus Pyopneumothorax in an Immunocompetent COVID-19 Patient: A Case Report

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Abstract

Introduction: Aspergillus co-infection among patients with coronavirus disease 2019 (COVID-19) is difficult to diagnosis, yet this can be associated with high morbidity and mortality rate. The purpose of this study is to introduce a case of aspergillus pyopneumothorax in an immunocompetent COVID-19 patient.

Case presentation: A 49-year-old male patient was referred for recurrent empyema and occurrences of pneumothorax during the previous two months, initially the patient was confirmed for COVID-19. There was no history suggestive of immunosuppression. A chest computed tomography (CT) scan showed left pyopneumothorax causing adjacent compressive atelectasis of the left lung. Decortication thoracotomy revealed thick pus from his pleural cavity and pleural tissue coated with yellowish necrotic material. Microscopic view of histopathological examination showed clusters of fungal hyphae with 45 degrees angle. Gray-greenish mold appeared on primary culture media with lactophenol cotton blue (LPCB) staining showed characteristic of *Aspergillus fumigatus*.

Discussion: Except for the confirmed COVID-19, this patient has no risk factors related to immunosuppression of fungal infection. This case fulfils the criteria of a proven invasive pulmonary aspergillosis (IPA) according to abnormality findings from clinical, radiological and histopathological, supported by the growth of aspergillus from specimen obtained through aseptic procedures from normal aseptic sites.

Conclusions: Little is known whether COVID-19 patients are prone to fungal infections, even more so in immunocompetent patients. Due to the lack of clinical awareness and the limitations of diagnostic tools, the challenge of diagnosing Aspergillus co-infection in COVID-19 patients may result in many undiagnosed cases.

Keywords: Aspergillus, pyopneumothorax, COVID-19, IPA

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After Three Years: Latest Situation on Rabies Outbreak in West Nusa Tenggara

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Abstract

Background. NTB Province has no longer been a rabies-free province since the regent Dompu regency territory declared as a rabies outbreak on January 30, 2019 and was followed by neighboring regencies. Cases of animal bitten transmission of rabies showed an increase during 2019 as well as the mortality cases. Coverage of Anti-Rabies Vaccine (VAR) in the first administration (VAR 0) reached more than 95% in the most affected areas, while subsequent VAR (VAR 7) shows a significant decrease. Meanwhile the dog vaccination and elimination were also carried out. This study provides an update on the situation after three years.

Methods. This descriptive analysis aims to review approaches used to cope with the outbreak. Most of the information obtained from secondary data. Several interviews with the person in charge of the relevant stakeholders until the complete information obtained.

Results. The management of rabies outbreaks has shown decent results. There is a constant decrease in the number of cases of animal bites that transmit rabies (dogs) by 50 percent per year, as well as the mortality rate in 2020. However, recent mortality rate cannot be calculated, predicted as increasing number during first trimester. Vaccination coverage (VAR and SAR) generally decreased in 2020, but its distribution slightly improved in 2021. From the animal health sector, there is a slightly increase in vaccination coverage for rabies-transmitting animals. The vaccinations in dogs is not evenly well distributed, there are differences among rural and urban areas, the major obstacles are geographical condition and the types of dogs that can be reached. The role of cross-sector is not optimally committed yet, still limited to the main key role in health sector, both human and animal health. Main limitation is the budget refocusing in 2020 due to the global pandemic.

Conclusion: Efforts to control the rabies outbreak have partially increased the coverage and distribution of vaccinations, both to humans (post exposure prophylaxis) and to dogs as rabies-transmitting animals. Cross-sectoral collaboration is less than optimal in the non-health sector. Budget refocusing is the main challenge in overcoming this epidemic.

Keywords: Rabies, outbreak, west nusa-tenggara, OH-SMART

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Erythema Multiforme Eruption Due To COVID-19 Until 6 Months Post Covid-19: Case Report

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Abstract

Background: The COVID-19 is a global pandemic and cutaneous manifestations are being increasingly reported. These dermatological symptoms may be useful in identifying asymptomatic COVID-19, thereby helping to slow the transmission of the virus. In this case the symptoms persisted for up to 6 months post-covid-19

Case Presentation: We reported a 31-year-old female patient with skin complaints of erythema multiform (EM) without medical background, we did a PCR test for COVID-19 with a positive result and a histopathological examination of the skin with a picture consistent with erythema multiform. Patient received vitamins, favipiravir, methylprednisolone and azithromycin for 3 weeks of treatment the PCR results are negative, skin complaints are completely gone up to 6 months post COVID-19.

Discussions: Vesicular lesions, tend to be more specific for viral exanthema. Thus, vesicular lesions can be a sign of a diagnostic suspicion of COVID-19. The findings related to COVID-19 are the result of the discovery of many proinflammatory molecular mediators. Mast cells, immune effect cells, are ubiquitous in the body, especially the skin. The pathophysiological mechanism of this skin eruption could be a hypersensitivity reaction mediated by lymphocytes targeting the SARS-CoV-2 antigen in the skin.

Conclusion: We suggest that this EM might be another pattern of exanthem associated with COVID-19 infection. Further studies are needed to evaluate the occurrence of skin rashes is related to the severity and clinical course of COVID-19.

Keywords: Erythema multiforme, COVID 19, viral, skin rashes.

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Case Report: Secondary Spontaneous Pneumothorax as a Complication of COVID-19 Infection with Bacterial and Fungal Infection at Adam Malik Hospital, Medan

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Abstract

Background: Pneumothorax is a rare complication of COVID-19. This case report is a secondary spontaneous pneumothorax due to COVID-19 and also accompanied by fungal and bacterial infections.

Case Presentation: A 39-year-old man complaints shortness of breath for 3 weeks, getting worse in 3 days and felt pain in the right chest for 3 days before admitted to our hospital. Loss of smell and taste for 1 month and history of fever was found for 1 week. The patient's room air oxygen saturation level was 78%. Physical examination revealed diminished in the right lung field with a chest x-ray showing an avascular appearance and a barcode sign by thorax ultrasound examination on the right hemithorax. The results of the SARS-CoV-2 RT-PCR swabs were positive at 20 and 9 days from an outside hospital before coming to our hospital. The results of sputum Rapid Molecular Test with Gene X-pert for Mycobacterium tuberculosis were negative and sputum culture were *Acinetobacter Baumannii* and *Candida Albicans* in our hospital. Thoracic drainage was placed on the right hemithorax to evacuate air for 10 days.

Discussion: One of the rare complications of SARS-CoV-2 virus infection is spontaneous pneumothorax. The pathogenesis is still unknown but some researchers assumed that microorganisms are directly penetrate in to the lungs including the pleura to infect and make necrosis of the lung tissue itself, although it can be caused by other factors such as mechanical ventilation.

Conclusion: Secondary spontaneous pneumothorax is one of the complications of patients affected by SARS-CoV-2 virus.

Keywords: Pneumothorax, Covid-19, Complication, sputum culture, SARS-CoV-2

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Etiology Neonatal Meningitis from CSF Specimen at Sanglah General Hospital

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Abstract

Background: Meningitis is an inflammation of the membranes that protect and cover the brain and spinal cord. In developed countries, meningitis in neonates reaches 0.3 per 1000 live births with mortality rate is 10%-15%. In developing countries, the incidence reaches 0.8-6.1 per 1000 live births with a mortality rate is up to 58%. Neonatal meningitis caused by bacterial and viral has occurred in 87.1% and 12.9% respectively. The other study found approximately 12% of neonates have meningitis caused by viruses such as Enterovirus. Data on the prevalence of neonatal meningitis at Sanglah Hospital showed almost 50% from 2015 to 2016. Neonates, especially those with weak immune systems, are more susceptible to suffering severe illnesses such as meningitis

Methods: This study is a retrospective descriptive, using secondary data at Clinical Microbiology Laboratory of Sanglah Hospital-Bali, from CSF Neonatal culture. Identification and sensitivity test of antibiotics using VITEK-2 Compact (Biomereux).

Results: From 111 CSF Neonatal specimens we found that most of the cultured specimens did not find bacterial growth of 103 (76%), and few bacterial growths was found, namely *Klebsiella pneumoniae* ssp. *pneumoniae* was 4 isolates (3%), *Rhizobium radiobacter* was 4 isolates (3%)

Conclusions: We found that most of the specimens showed no bacterial growth, this suggests the cause of meningitis may be viral or other than bacterial. So, it is necessary to make therapeutic guidelines and evaluate the use of antibiotic.

Keywords: Meningitis, neonates, pathogen etiology

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Clinical Evaluation of Narrowband Ultraviolet B Phototherapy Combination with Methotrexate for Psoriasis Vulgaris in Asian Skin Type: Retrospective Analysis from Tertiary Hospital in Indonesia

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Abstract

Background: Psoriasis is a chronic autoimmune disease manifested as recurrent thick red scaly patches on the skin. Narrowband ultraviolet B (NB-UVB) have been widely used as first-line treatment of extensive plaque type psoriasis since its relatively safe and effective, including for Asian skin type. Methotrexate (MTX) is one of systemic agent considered for severe psoriasis treatment. Few studies conclude that the combination of NB-UVB and MTX is more favorable. This study aims to evaluate clinical improvement of psoriasis vulgaris, which is presented by Psoriasis Area and Severity Index (PASI) score, after NB-UVB combination with MTX treatment in Indonesian patients.

Methods: Data were collected retrospectively from the dermatology and venereology outpatient clinic of Dr. Soetomo General Academic Hospital, in Surabaya, Indonesia. PASI score is considered as the main outcome evaluated in this study.

Results: Twenty-eight patients were included with male to female ratio was 3:1 and average age were 43.6 years old. The mean PASI score before treatment was 15.79 (± 7.12), and it reduces significantly into 9.74 \pm 7.56 ($P < 0.001$). Among them, 20 patients underwent combination treatment of NB-UVB and MTX. This group achieved PASI score reduction of 7.11 (± 5.27), which was greater when compared to patients who got NB-UVB alone that achieved 3.31 (± 7.62) PASI score reduction in average.

Conclusion: NB-UVB phototherapy is considered as effective in reducing clinical severity of psoriasis vulgaris. Combination with MTX is more advantageous to achieve greater clinical improvement.

Keywords: Psoriasis; phototherapy; narrowband ultraviolet B; methotrexate, evaluation, human & health.

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First Clinical Case of *Exserohilum rostratum* Infection in Indonesia

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Abstract

Background: *Exserohilum* species are environmental fungi commonly found in soil, grass, and aquatic environments, considered as cosmopolitan pathogens in tropical and subtropical region. However, only *E. rostratum*, *E. longirostratum*, and *E. mcginnisii* are human pathogens. We present a first case of *E. rostratum* infection in Siloam Hospitals, Kuta, Indonesia. To the best of our knowledge there has not been a case in Indonesia reported.

Methods: We followed patient development prospectively, a female, 35 years old with chief complain of a lump (3 cm x 2 cm) with redness and pain on right ankle since October 2020, then performed culture and subculture examination to be observed microscopically.

Results: Culture results indicated a fungal infection; no aerobic bacterial growth was found. Complete blood counts were within normal limits. 2 July 2021, we performed subculture with Saboraud Dextrose Agar (SDA) in 25°C and 37°C for one week in Clinical Microbiology Laboratorium, Sanglah General Hospital. Colonies growth, white to gray in color, only seen in 25°C indicated a mold. Subsequently, we performed slide culture with SDA for two weeks. Patient has been being treated with fluconazole, an initial dose of 300 mg orally on the first day, followed by a dose of 150 mg per day for 6 months since 29 June 2021. Presently, third post-operative wound is dry and healed, without formation of new lump and signs of inflammation.

Conclusion: Microscopic examination with lactophenol cotton blue stain revealed dark hyphae and septate, ribbon-like; protruding hilum, “plumb-bob” cells in conidium identical with *E. rostratum*.

Keywords: Emerging mycoses, *Exserohilum rostratum*, mold

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Effects of Moringa (*Moringa oleifera*) on Malondialdehyde (MDA) Levels in Alloxan Induced White Rats

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Abstract

Background: An unhealthy lifestyle, especially in big cities, has caused various kinds of health problems in the community, one of which is diabetes mellitus¹. Diabetes Mellitus (DM) itself is a metabolic disorder that occurs chronically or chronically due to abnormalities in the production and nature of the insulin hormone, and has become one of the global health emergencies since the 21st century that causes various health complications^{1,2}. The purpose of this study was to determine the effect of ethanol extract of Moringa (*Moringa oleifera*) leaves on malondialdehyde levels of Sprague Dawley rats induced by alloxan.

Methods: This research is a laboratory experimental research with a true experimental approach-randomized pretest and posttest with control group. Malondialdehyde was examined by the spectrophotometer method, the intervention was carried out in the integrated laboratory of FK Undana.

Results: Malondialdehyde levels in the negative group and the treatment group $p > 0.05$.

Conclusion: Moringa leaf ethanol extract (*Moringa oleifera*) has antidiabetic activity by reducing malondialdehyde (MDA) levels, which is one of the markers of oxidative stress.

Keywords: *Moringa*, *Malondialdehyde*, *Alloxan*

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The Potential Microbes Extract against Amebiasis Determined by CS3 Enzymatic Assay

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Abstract

Background: Amebiasis (amoebic dysentery, amoebic enteritis, amoebic colitis, amebic hepatitis) is an infectious disease of the large intestine caused by intestinal parasites of the protozoan group, *Entamoeba histolytica*. For invasive amoebiasis and extra-intestinal disease, nitroimidazole (e.g., metronidazole) is the mainstay of therapy but is only active against the trophozoite stage. Natural products such as plants or microbes still play an important role in pharmaceutical and biological activities. Therefore, the identification of new substances from microbes is urgently needed for improving treatment against amebiasis.

Methods: In this experiments, collection of microbe extracts from Biotech Centre (BPPT) were screened against recombinant CS3 enzyme from *Entamoeba histolytica*. Fungal and actinomycetes were extracted using methanol as a solvent. Those extracts were screened for their antiamebic activity by CS3 enzymatic assay. Extracts of mixed enzymes were incubated at 37°C for 10 minutes, then added acetic acid and ninhydrin reagent. Incubation was continued at 95°C before measuring the absorbance at 560 nm.

Results: The results showed 233 hit extracts (12.2%) of 2000 fungal and actinomycete extracts which inhibited CS3 enzyme with 50% inhibition. Total active extracts were identified 137 and 107 active extracts from Fungal and Actinomycete, respectively.

Conclusion: In this research, we summarized that microbes extracts were able to inhibit *Entamoeba histolytica* by CS3 enzyme pathway and potential to be used as sources for drug development from microbes against amebiasis in the future.

Keywords: amebiasis, CS3 enzymatic assay, microbes, medicine

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Activity of *Vitex trifolia* L. Leaves as Inhibitor of Influenza A (H5N1) Viral Neuraminidase

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Abstract

Background: Ten years after the outbreak of influenza virus, WHO still give a warning about the future risk of the pandemic caused by the virus. From 1918, influenza virus has caused 4 global pandemic that caused morbidity more than one third of global population. This virus is still around us, as a seasonal flu that caused sickness and deaths. Research on finding antivirus has been done to give a contribution on development of antivirus candidates. The interesting protein target of influenza virus is its neuraminidase enzyme, because it facilitates the release of a new virions. One of the plants that used in this study to be subjected on anti-neuraminidase influenza H5N1 virus is *Vitex trifolia* L. (Verbenaceae).

Methods: Neuraminidase inhibitor assay was conducted using MUNANA Assay. *Vitex trifolia* L leaves obtained and identified by BKT Purwodadi Botanical Garden (LIPI). In order to separate the chemical compounds based on their polarity, dried leaves of *Vitex trifolia* L. was extracted using various polarity of solvents named n-hexane, ethyl acetate, 96% of ethanol and 70% of ethanol. The extracts were subjected on MUNANA assay with maximum concentration of 250 µg/mL and a standard of neuraminidase inhibitor, DANA, was used as positive control.

Results: Result showed that the IC₅₀ values of ethyl acetate, 96% of ethanol and 70% of ethanol extracts are 33.42 µg/mL; 173.90 µg/ mL; 31.82 µg/mL. While n-hexane extract was excluded due to lack of solubility in buffer solution.

Conclusions: Ethyl acetate and 70% of ethanol extract of *Vitex trifolia* L have a potential to be developed as anti influenza A (H5N1) with inhibition mechanism on neuraminidase inhibitor.

Keywords: antivirus, neuraminidase, H5N1, *Vitex trifolia* L

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Diagnostic Challenge of Basidiobolomycosis in Indonesia: A Rare Case Report

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Abstract

Background: Basidiobolomycosis is a rare fungal infection in Indonesia characterized by the formation of fluctuant arm and non-tender swellings, generally on the extremities and trunk in immunocompetent subjects. Basidiobolomycosis is a granulomatous type of skin and subcutaneous tissues caused by *Basidiobolus ranarum*. The purpose of this article is to describe the fungal histopathology diagnostic challenge of Basidiobolomycosis in young immunocompetent subjects and to emphasize the importance of diagnostic tools for the appropriate result of interventions. Definitive diagnosis is microscopy and histopathology examination.

Case describe: A 24-year-old male patient presented a solid and hard lump on the right arm and face since 2 years ago, no pain and itchy. The biopsy has been done, and anti-tuberculosis therapy has been given for 6 months but not improved. The tumor progressively grew up and extended to the right upper arm, neck, and face 1 month before hospital admission. The patient was clinically diagnosed with suspected soft tissue sarcoma of the right superior extremity region and lymphedema. The microbiology culture showed no growth of fungi but pathology examination showed granulomatous inflammation with multinucleated giant cell. Fungal histopathology examination used much different staining techniques such as: hematoxylin-eosin, PAS, GMS, GMS-HE combination, PAS-mc manus, and GMS-phloxine tartrazine stain. These findings indicated *Splendore Hoeppli phenomenon* and large (5-30m) thin-walled hyphae, which are nonseptate, branched perpendicularly and have a ribbon-like appearance. Itraconazole therapy was given for approximately 1 year and the condition improved.

Conclusions: We present this case to bring awareness of fungal diagnosis as a differential in immunocompetent patients.

Keywords: Basidiobolomycosis, histopathology diagnosis, Splendore Hoeppli phenomenon

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The Positive Impact of the Compliance in the Use of Prophylactic Antibiotics for Surgical Site Infection Prevention in Clean and Clean-Contaminated Orthopedic Surgeries in an Academic Hospital in Indonesia

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Abstract

Background: Surgical Site Infection (SSI) is a serious surgical complication because it can increase morbidity and prolong the treatment, with corresponding increases in the costs. The incidence of SSI in the world ranges from 5% to 15%, with current estimates for developing countries like Indonesia varying between 2-18% in all surgical procedures.

Methods: We conducted a retrospective study using data from medical records on patients who had clean and clean-contaminated orthopedic procedures from 2013 to 2016 in the standard operating room of an academic hospital of Dr. Soetomo Surabaya. We analyzed the use of prophylactic antibiotics in terms of antibiotic selection, defined daily dose (DDDs), the timing of administration, and SSI outcome related to the compliance to the local guideline for the use of prophylactic antibiotics.

Results: There were 5246 patients undergoing clean and clean-contaminated surgeries. The incidence rate in patients with SSI from 2013 to 2016 was 0.1%. Cefazolin was mostly used for prophylaxis with total DDDs of 427 and 396 in 2013 and 2016, respectively. Estimated costs were US\$ 1,087-1,175 (1,027-1,339) in those years. Prophylactic antibiotics were mostly administered between 30 and 60 minutes before surgery. The compliance rate to the prophylactic antibiotic guidelines was 48.3%. SSI incidence among the non-compliant group was a range of 0.1%-0.2%. SSI incidence in the compliant group was a range of 0%.

Conclusion: A compliance with the guideline for prophylactic antibiotic uses should be considered lowering SSI incidence among patients with orthopedic surgeries. Antibiotic selection, DDD parameter, and timing of administration are strategic measurements for SSI prevention.

Keywords: Compliance, prophylactic antibiotics, Surgical Site Infection (SSI), orthopedic operation, costs

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An Analysis of Virulence Factors Gene Protective Antigenic (*pagA*) from *Bacillus anthracis* in Severity, Transmission Factor in Indonesia

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Abstract

Background: Anthrax spores has received worldwide attention because have the potential to used as a biological weapon or bioterrorism with a high mortality rate. Virulent forms of *B. anthracis* harbor two large pathogenicity related plasmids: pXO1 (181.6 kb), which encodes the anthrax toxin genes *pagA*, *lef*, and *cya2,3* and pXO2 (93.5 kb), which carries the genes responsible for capsule synthesis and degradation, *capA*, -B, -C, and -D.

Methods: This method of writing article is based on the literature study from both international and national journal sources that relate to the anthrax, also the virulence factor of *pagA* gene, anthrax severity and transmission factor.

Results: The findings of this article review was Anthrax disease severity related to the gene factor namely in *pagA*, in order to exert their toxic biochemical activities at the targets, the toxins need to gain access to the cell cytoplasm. This task is performed by hijacking cellular pathways with the help of two main receptors that are recognized by PA: the capillary morphogenesis genes 2 product (CMG2 or ANTXR2) and the tumor endothelial marker 8 (TEM8 or ANTXR1). Risk factor that causing high prevalence of anthrax transmitted to humans are lack of farmers knowledge on anthrax, peoples habit of slaughtering the sick animal and consuming the meat.

Conclusions: Severity and increased transmission in anthrax disease related to Protective Antigen (PA) that consist of *pagA* gene from *Bacillus anthracis* and also lack of farmers knowledge on anthrax, which their relationship was reciprocal.

Keywords: Anthrax, *pagA* Gene, pXO1, *Bacillus anthracis*, CMG2, prevalence anthrax

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Prevalence of HBV Drug-Resistant Mutation in HBV/HIV Co-Infected Patients on Antiretroviral Therapy in Indonesia

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Abstract

Background: The prevalence of hepatitis B virus (HBV) coinfection with HIV is increasing worldwide because of shared transmission routes. HBsAg screening is not routinely done for patients diagnosed with HIV in Indonesia. Lamivudine (3TC) and tenofovir (TDF) are nucleos(t)ide analogues that suppress HBV and HIV replication, but there are different policy of 3TC and TDF used in patients with HIV/HBV coinfection and HBV mono-infection. We aimed to determine the prevalence of hepatitis B virus (HBV) drug-resistant mutations in patients co-infected with HIV/HBV in Indonesia

Methods: One hundred and three subjects who have HBV mono-infection and 117 of 293 HIV subjects identified as having HIV/HBV coinfection participated in this study. The HBV mono-infection patients were tested for Anti-HIV. The HIV patients were tested for HBsAg and total anti-HBc. The HBV DNA was detected by semi-nested PCR. The amplified fragments were directly sequenced and analyzed for drug resistance mutations using the Genafor/Arevirgeno-2pheno drug resistance tool (<http://coreceptor.bioinf.mpi-inf.mpg.de/>).

Results: The proportions of positive HBsAg and total anti-HBc in HIV patients were 9.22% and 33.83%, respectively. The HBV DNA was detected in 24/117 (20.51%) and 24/103 (23.30%) in patients with HIV/HBV coinfection and HBV mono-infection, respectively. The percentage of mutations in the RT HBV gene related to drug resistance in HIV/HBV co-infection was 9.09% (2/22). The mutation pattern that occurred was rtL180M+rtT184S+rtM204V which was related to resistance to lamivudine, entecavir and telbivudine therapy. The mutation in patients with HBV mono-infection was 7/23 (30.43%), which consists of 4/7 (57.14%) rtM204I; 3/7 (42.85%) rtL180M+rtM204V related to resistance to lamivudine, telbivudine and partial resistance to entecavir. Neither group found the mutation that causes resistance to tenofovir. The P-value of mutations in the polymerase gene of HBV related with resistance to lamivudine and tenofovir between HBV mono-infection and HIV/HBV coinfection patients was 0.075.

Conclusion: The mutation prevalence in HIV/HBV co-infection patients is not higher than in HBV mono-infection patients.

Keywords: Hepatitis B; HIV; drug resistance, infectious diseases

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