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The organising committee extends a warm invitation to the 1st International Conference on One Health (1st ICOH) held in Malang, Indonesia, at the Widyaloka Conference Centre, Brawijaya University. The event commenced with an opening address and social mixer and concluded with two workshops at Brawijaya University Veterinary Teaching Hospital. The conference brings together veterinarian, medical doctors, research, academia, government and regulators to enable a cross-disciplinary, comprehensive program that addresses One Health. The event employed the “One Health Approach in Zoonotic Disease Control Strategy” and appeals to multiple disciplines associated with public health, animal health, and environmental health.

Please [click here](#) for the conference website.

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Greeting of peace to All,

We are delighted and honoured to all speakers and participant for contributing to the success of the 1st International Conference on One Health (1st ICON-OH), organized by Faculty of Veterinary Medicine Brawijaya University. In this event had been expressed of increasing information and publication of research result on one health approach in zoonotic disease control strategy. One health approach is an important issue to bring together human health care practitioners, veterinarians, and public and environmental health professionals, in order to solving global and environmental health challenges.

International conferences have been held several times on Brawijaya University, but this was the first international conference specifically devoted to One Health. which is currently become the most important issue to

collaborate human medicine, veterinarians, and public and environment: health professionals in order to prevent and control Zoonotic Disease. We like to acknowledge the President and Vice President of Academic Affairs Brawijaya University, Chairman of the conference, organizing committee, all faculty and staff members of the Faculty of Veterinary Medicine Brawijaya University for their efforts to make this happen, and many others who have generously given help in the process.

MENU

This proceeding hopefully could follow up the collaboration between all of us to encourage and develop of co-operation and exchange in all areas of mutual academic, researches and publications. We hope you had a wonderful and productive time at the conference. We wish you all the best in your research and scientific endeavours and would like to apologise for any shortcomings in the organisation of the event. We would like also to thank our invited speakers who traveled from afar and made time to share their research expertise with us.

With thanks,

Organizing Committee

Faculty of Veterinary Medicine Brawijaya University

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Comparative Study: The Role of Stem Cell In Damaged Cell

Fedik Abdul Rantam, Dwikora Novembri Utomo, Heri Suroto

Stem cell is undifferentiated cell that have some properties like self renewal and plasticity. The other properties are can differentiate into some the specific cell. Stem cell is divided into two kinds of cell base on the resource of stem cell are embryonic stem cell and adult stem cell. Base on the...

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Development of Medical Devices Based on Protein Marker for Animal and Human Diseases

Aulanni'am Aulanni'am

The concept of medical devices based on immunochromatography, is a combination of chromatography technique (for separation of sample components based on differences of their movement through the sorbent) and the immunochemical reaction that has been implemented in various ways. In this review, we discuss...

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Antimicrobial Resistance and the Alternative of Using Probiotics as Growth Promoter

I Wayan Teguh Wibawan

The countries in the Asia-Pacific region, namely, Australia, Bangladesh, China, India, Indonesia, Japan, Malaysia, Myanmar, Philippines, Republic of Korea, Thailand and Viet Nam, have come together on the occasion of the Tokyo Meeting of Health Ministers on Antimicrobial Resistance (AMR) held in Japan;...

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The Importance of Oocyte and Sperm Cryopreservation of Indonesian Genetic Resources of Local Sheep and Goat

Gatot Ciptadi, Muh. Nur Ihsan, Sri Rahayu

MENU

Animal breeding, genetic and reproduction are facing challenges with more powerful and useful methods for creating new breeds, genetic change and improvement. In the near future, the frozen cells of sperms and oocyte of local breed and animals have a potential to trade at a national, regional and international...

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The Precede-Proceed Model As Proposed Model In The One Health Paradigm

Oedojo Soedirham

One Health is "the collaborative effort of multiple disciplines - working locally, nationally, and globally - to attain optimal health for people, animals and the environment". One Health is a new phrase, but the concept extends back to ancient times. The recognition that environmental factors can...

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Effects Of Goat Milk Peptide On Immuno Histo Chemistry Profile Of Lung Cancer Rattus Norvegicus

Romziah Sidik, Aulanni'am Aulanni'am

Complete feed with high linoleic acid content may produce goat milk containing high linoleic acid too and it has specific protein with molecular weight of 42 kDa. The isolated milk peptide belong to goat milk containing 3.21% Linoleic acid (F2) and 4.80% (F3) can be promoted as candidate peptide with...

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Prevalence And Levels Of Soil Transmitted Helminths (Sth) Infection Associated With Gender And Age In Cakung Public Elementary School On District Binuang Serang Banten Area

Titis Cresnaulan Desiyanti, Ambar Hardjanti, Zwasta Pribadi Mahardhika, Putri Rachmawati, Rizki Fauzi Rahman, Yolanda Intan Farellina, Yudi Wahyudi

Underdeveloping countries have a high prevalence of worm infection. Some causes of this condition are poor environmental sanitation, lack of personal hygiene, consuming food contaminated with worm's eggs and low levels of socioeconomic education. More than 1,5 billion people or 24% of world population...

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Selfcare Group Efforts To Increase The Confidence Of Lepers In Jeneponto, South Sulawesi

Mr. Syahridha, Mr. Supriadi

Leprosy, one of neglected tropical diseases, is a contagious disease that is so feared by all of people. It is still become one of the problems that faced by the world society because it can lead to a very complex problem. People who are suffering from leprosy may have disabilities that are settled...

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Detection Rifampicin Resistance Tuberculosis Using Xpert MTB/RIF Assay in Saiful Anwar Hospital Malang

Dwi Yuni Nur Hidayati, Yani Jane Sugiri

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Tuberculosis is still problem in Indonesia. The increase number tuberculosis patients and then multidrug resistance tuberculosis the higher it. Xpert MTB /RIF assay, an automated real time polymerase chain reaction assay, detects the presence Mycobacterium tuberculosis and rifampicin resistance to rifampicin...

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Expression Of Human Neutrophil Gelatinase-Associated Lipocalin (Ngal) On Serum And Urine Sample Of Pre Dialysis Kidney Failure Patients

Retty Ratnawati, Tinny Endang Hernowati, Nurina Titisari, Ahmad Fauzi

Biomarkers for the early prediction of human acute kidney injury (AKI) are clinically important. Recently, neutrophil gelatinase-associated lipocalin (NGAL) has found to be a sensitive biomarker for the prediction of human AKI at a very early stage and the development of AKI after surgery. NGAL is an...

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Nigella sativa L seed's Extract Modulates Liver Regeneration by Affecting Endogenous Stem Cells in Liver Fibrosis Model of Rat

Safithri Fathiyah, Putra Suhartono Taat, Ferdiansyah Ferdiansyah

Chronic liver disease commonly result in liver fibrosis and eventually liver cirrhosis. It has been demonstrated that patients with liver cirrhosis whom consumed N. sativa seed's experienced an improvement such as increasing of serum albumin level followed by diminished lower extremities oedem and ascites....

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Expression of IL-1 on Mucosal Cavity's Chronic Inflammation after Provision of Clarias Batrachus Fish Oil

Theresia Indah Budhy, Istiati Istiati, Intan Vallentien Dwi Hariati

Background. The presence of cell or tissue damage always followed by inflammatory reactions. Inflammatory process should not persist because it can interfere even inhibit regeneration. An increased circulation of IL-1, IL-6 and TNF-alpha happens in chronic inflammation. IL-1 is granulocytes chemoattractant...

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Effects of Aloe vera Cream On Skin Wound Healing In Sprague Dawley Rats: The Role of CD4+ And CD8+ Lymphocytes

Yos Adi Prakoso, Kurniasih Kurniasih

Wound is defined as a damage of the normal anatomical structure and function of tissues. Aloe vera is one of potential herbal on wound healing. The aim of this study is to explore the effect of topical Aloe vera on skin wound healing in Sprague Dawley rats. Thirty six male Sprague Dawley rats 150-200 grams...

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The Anthelmintic Effectivity of Gandarusa Leaves (Justiciagendarussa Burm. F.) Infusion And Kapok Seed Infusion (Ceibapentandra L.) Against Female Ascarissuum In Vitro

Rita Tjokropranoto, Cherry Azaria, Manasye Jutan, Said Muh.Faros Ghalib

Ascariasis is known as "soil transmitted helminths" which persons were infected by ingesting eggs were passed in the feces. The most prevalence Ascariasis in school children are more than 30%, with resultant impairment in growth retardation, intellectual, and cognitive development. The purpose of...

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Vitamin E Changes Erythrocyte and Leukocyte Levels in Male Rats (Mus Musculus) Due to Strenuous Exercise

Sugiharto Sugiharto, Mohammad Arif Ali, Anies Setiowati

Oxidative stress can be induced by strenuous exercise either in human or in animal, it can damages erythrocyte during and post-exercise. Furthermore, maximum exercise also affecting leukocyte level. In another hand that vitamin E as an agent of antioxidant might be potentially can be a protector for...

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Rose Bengal Test and Complement Fixation Test To Detect Human Brucellosis In Occupationally Exposed Groups At Cilawu District, Garut

Risqa Novita

Human brucellosis is a neglected zoonoses disease in Indonesia. The data on human brucellosis prevalence is limited. Brucellosis infects human from infected animals by direct contact, drink milk from infected animals and breath the contaminated air. Farmers, dairy workers, veterinarians and people who...

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Protein of *Sarcoptes Scabiei* var. *Caprae* Inducing Rabbit's Immune Response and Toll-Like Receptor-2 (TLR-2) as Marker MENU

Nunuk Dyah Retno Lastuti, Fedik Abdul Rantam, Pudji Hastutiek, Dony Chrismanto

This research aims are to detect *S.scabiei* var. *caprae* antigenic protein which can induce cellular immune response in rabbit as acquired immunity with TLR-2 as marker. This research was performed in several stages i.e soluble protein *S.scabiei* var. *caprae* mites extraction; rabbit immunization by inoculating...

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Potential of *Lactobacillus casei* Shirota Strain as Probiotic toward MDA Levels and Histopathology of Aortic Tissues in Rat with High Cholesterol Diet

Kiswanti Surya Utami, Chanif Mahdi, Aulanni'am Aulanni'am

Hypercholesterolemia is a major risk factor of cardiovascular disease. Hypercholesterolemia is a condition that the cholesterol levels in the body exceed the normal limits. The main factor that causes high cholesterol levels in the body is a high-cholesterol diet. The provision of high-cholesterol diet...

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Effectivity Of Both KIO_3 And KI Salt Toward Iodine (I_2) Level In Urine, Malondialdehyde (MDA) and Histopathology of Thyroid Gland of Goitrogenic Rats

Chanif Mahdi, Risman Heli, Sasangka Prasetyawan

Goitrogenic a substance that can inhibit the taking of iodine by the thyroid gland, so that the concentration of iodine in the thyroid to be low., is

characterized by the inflammation in the gland thyroid area caused an excessive of free radicals. An excessive of free radicals in the body cause oxidative...

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Cow's Milk Yogurt Modulate Expression of STAT5, BMI-1 and LGR-5 in ileum of Indomethacine-Induced Inflammatory Bowel Disease (IBD) in Rats.

Masdiana Chendrakasih Padaga, Wibi Riawan, Nur Hamni

Inflammatory bowel disease (IBD) is characterized by a chronic recurrent inflammation of the gastrointestinal tract . The environmental factors affecting IBD include diet, the use of antibiotics and nonsteroidal anti-inflammatory drugs (NSAIDs) and stress. All of which can directly or indirectly affect...

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Sensitivity test of Escherichia coli againts extract of Tinospora crispa

Lucia Muslimin, Nurul Rezqi Hazrah, Abdul Wahid Jamaluddin

In general, a bacterium such as Escherichia coli produces a kind of toxic protein which can disrupt intestinal wall. Livestock reacts to these toxins by pumping lots of water into the intestine in order to rinse or flush these toxins. As a result, the livestocks have diarrhea as a body response to remove...

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The studies of Leaf extract of *Ficus lyrata* Warb on antimicrobial activities

Dwi wahyuda Wira, Efri Mardawati, Mochammad Djali, Roostita Balia

The extract of leaf *Ficus lyrata* Warb has potential as antimicrobial agents, because it contains bioactive components such as polyphenols, tannin and triterpenoid that can inhibit the growth of microbials. The maceration extraction method was used in this study using water as solvent agents, to extract...

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Profile Histopathology Analysis of Gastric, Duodenum, Ileum, and Colon of Inflammatory Bowel Disease (IBD) Rat Model

Dhita Evi Aryani, Aulanni'am Aulanni'am, Agri Kaltaria Anisa, Wawid Purwatiningsih

Inflammatory bowel disease (IBD) is a disease that is mediated by the immune system that affects the gastrointestinal tract, especially the colon mucosa. This disease will cause diarrhea and mucosal damage. In general, IBD is caused by viruses and bacteria that infect the gastrointestinal tract, but...

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Synthesis and Activity Analysis of 3-(10-Bromodecyl)-5-isopropyl-2-methyl-1,4-benzoquinone: In-silico Approach

Novia Eka Setyatama, Siti Mariyah Ulfa, Hideki Okamoto

The 3-(10-bromodecyl)-5-isopropyl-2-methyl-1,4-benzoquinone (1) have been synthesized and structurally characterized by mass spectrometer (LC-MS), FT-IR, ¹H-NMR and ¹³C-NMR spectra. The synthesis was carried out by refluxed

Thymoquinone (TQ) with bromoundecanoic acid in the presence of acetonitrile:water...

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Bats As A Viral Reservoir: A Short Review Of Their Ecological Characters And Immune System

Desrayni Hanadhita, Aryani Sismin Satyaningtijas, Srihadi Agung Priyono

Bats are reported as natural reservoir host of several viruses, many of which cause severe human disease. Infected bats usually do not show any clinical symptoms and persistently infected. Bats immunity against viruses is an evolutionary process of self-defense created by ecological adaptation between...

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The Potential Risk of Viral Transmission Among Flying Foxes, Domestic Animals, and Humans in Southern Coast of West Java, Indonesia

Chaerul Basri, Etih Sudarnika, Abdul Zahid, Srihadi Agung Priyono, Retno D. Soejoedono, Eko M. Z. Arifin, Heru Susetya, Bambang Sumiarto, Yupadee Hengjan, Keisuke Iida, Hitoshi Takemae, Eiichi Hondo

Flying foxes have been considered to be involved in the transmission of serious infectious diseases to humans. This study aimed to know the direct and/or indirect contacts of flying foxes that live in the Indonesian natural conservation area, with domestic animals and humans living in the surrounding...

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Genetic Characterization of Avian Influenza Virus Isolated from MENU Infected Commercial Duck in Sidenreng Rappang, South Sulawesi in 2016

Ahmad Nadif, Fachriyan H. Pasaribu, Okti Nadia Poetri, Retno D. Soejoedono, Dwi Desmiyeni Putri

Before outbreaks of avian influenza (AI) among commercial laying duck in Central Java in 2012, duck were considered as reservoir of this virus, the outbreaks reveals that duck were also susceptible for AI infection. The outbreaks among laying ducks in 2012 were caused by AIV subtype H5N1 clade 2.3.2,,...

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Subtype Identification Of Avian Influenza Virus Isolated from Laying Duck In Sidenreng Rappang, South Sulawesi With Hemagglutination Inhibition Assay

Bagus Nanang Luwito, Ahmad Nadif, Retno D Soejoedono, I Wayan T Wibawan

Avian Influenza virus (AIV) have caused significant economic losses in poultry sector worldwide. Results of genetic mapping showed that circulating AIV in Indonesia were belong to clade 2.1.1, 2.1.2, 2.1.3 and 2.3.2, however the AIV subtype were merely H5N1. Our study aim to identify the hemagglutinin...

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The influence of hunting activity on haematological parameters of local dogs in Tabek Panjang, Baso, West Sumatera, Indonesia

Radhiati Kemala Sari, Triva Murtina Lubis

This study aims to determine whether a physical activity such as hunting boars has effects on erythrocyte counts, haemoglobin concentration, and haematocrit values of local dogs (*Canis familiaris*) in Tabek Panjang, Baso Subdistrict, West Sumatera, Indonesia. The study used ten healthy male local...

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Assessment of Profile of Antigenicity and Immunogenicity of *Eimeria maxima* and *Eimeria tenella* Through Propagative Level and Histopathological Changes in Site Infection for Exploration of Optimal Low Doses of Bivalent Chicken Coccidiosis Live Vaccine

Endang Suprihati, Muchammad Yunus

Live vaccines group was the first to be studied, due to the fact that live parasites reduce further reinfection. The development of vaccine to control coccidiosis caused by *E. maxima* and *E. tenella* in chickens is intensifying because of the increasing threat of drug resistance to anticoccidial agents....

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One Health Approach in the Understanding of Possible Diseases Transmission by Fruits Bats

Didik Pramono, Supratikno Supratikno, I Nengah Donny Artika, Faisal Tanjung, Ni Luh Putu Ika Mayasari, Etih Sudarnika, Abdul Zahid Ilyas, Chaerul Basri, Srihadi Agungpriyono

About 75% of contagious diseases in the world are classified as zoonoses. One among wild animals suspected to spread the disease is bat. Bats have an important role in the spreading of viral diseases. Fruit bat is among bat species that may potentially transmit diseases to human. The transmission of...

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Haematological study of fruit bat, *Cynopterus Tithaecheilus*

Anisa Rahma, Desrayni Hanadhita, Andhika Yudha P., Danang D. Cahyadi, Supratikno Supratikno, Hera Maheshwari, Aryani Sismin Satyaningtijas, Srihadi Agungpriyono

Haematological profile is important to determine the physiological condition of an individual, and morphology of red blood cells can also be helpful in making a diagnosis of a disease. The size of red blood cells affects the ability of red blood cells to carry oxygen. In some clinical events shape and...

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Human Resources Development Strategy In Brucellosis Diseases Monitoring At Sentra Peternakan Rakyat Cinarabogo, Subang

Ferdi Fathurohman, Enceng Sobari, Fika Ayu Safitri

Running business in group, in Indonesian is Sentra Peternakan Rakyat (SPR), which are sustainably running business together is the hope for all the farmers and also the government to meet the needs of national meats. In the past, some of farmers must disband and terminate its business due to wrong strategy...

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Genetic Characterization of Viral Nervous Necrosis Infects Tilapia (*Oreochromis sp.*) in Indonesia

Uun Yanuhar, Novia Christi, Diana Arfiati

Tilapia (*Oreochromis sp.*) is the most important cultured fish in the 21 century and Indonesia is the country's second largest tilapia producer after China. It

make Indonesia should be more concerned with any possible attack disease that can infect both from the class of parasites, fungi, bacteria,...

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Genetic Variation of Local Ettawah Crossbreed Goats in two different breeding

Mudawamah Mudawamah, I.D. Ratnaningtyas, M.Z. Fadli, Aulanni'am Aulanni'am, G. Ciptadi

Breeding system in goats in Indonesia applying had two models of breeding with owned bucks by breeders or breeding assisted by bucks selected from the government in the form of frozen semen. Problems interesting note was how the genetic variation of the population of the goat. The purpose of this study...

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Hypothesis: Relationship of skin morphology and cutaneous scarless wound healing in sunda porcupine (*Hystrix javanica*)

Andhika Y Prawira, Supratikno Supratikno, Savitri Novelina, Srihadi Agungpriyono

Sunda porcupine (*Hystrix javanica*) is one among the wild mammals of Indonesia. The porcupine skin shows peculiar appearance by the presence of quills, spine like structure, instead of hair, that commonly found in mammals. On the other hand, our previous preeliminary study observed a relatively quick...

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Primer design and in silico analysis of endoglucanase gene for *Bacillus* genus

Dewi Yuliani, Akyunul Jannah

Endoglucanase is an enzyme initiating hydrolysis of cellulose. The enzyme has been applied in various fields, such as medicine and food. Previous research has been isolated cellulolytic bacteria that are capable to produce endoglucanase, i.e. *Bacillus brevis* and *Bacillus cereus* from bekatul.

Determination...

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Electroencephalogram recording in Garut sheep: effect of the use of xylazine in small ruminants

Dian Vidiastuti, Harry Soehartono, Deni Novianto

Minor procedures which are not painful but require the animal to be relatively immobile may be performed with the aid of a sedative. In practical terms, sedative agent cause some degree of drowsiness until lost of consciousness. Xylazine used as a sedative and anaesthetic induction by inhibiting the...

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Pathotypic and Phylogenetic Analysis of Newcastle Disease Virus Isolated from Vaccinated Chicken in West Java, Indonesia

Dwi Desmiyeni Putri, Ekowati Handharyani, Retno Damajanti Soejoedono, Agus Setiyono, Ni Luh Putu Ika Mayasari, Okti Nadia Poetri

Newcastle disease (ND) is a highly contagious disease of poultry worldwide, caused by Newcastle Disease virus (NDV), also known as Avian Paramyxovirus

Type1 (OIE. 2012). Despite vaccination, outbreaks of ND in vaccinated chickens' flocks in Indonesia have been regularly reported. The emergence of new virulent...

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Teat End Condition and Hyperkeratosis at Different Lactation Periods

Herwin Pisestyani, RP Agus Lelana, Advis Dwi Saputra, Retno Wulansari, Afton Atabany, Mirnawati B. Sudarwanto

As a producer of milk, dairy cows must be in good health condition. This study was aimed to assess the influence of hand milking at difference lactation and udder quarter towards teat end condition and hyperkeratosis on dairy cattle in Kunak Bogor and Pasir Jambu Bandung. Object used in the study are...

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The potency of Binahong leaves (*Anredera cordifolia* (Ten.) Steenis) to recovery process of wound in the livestock

Rita Purwasih, Fika Ayu Safitri

Anredera cordifolia (Ten.) Steenis, in Indonesian is binahong, is a creeping plant with a length can reach 6 meters. Binahong originated from the United States and be classified in Family Basellaceae. In Indonesia, binahong often be used for traditional medicines to treat diabetes, relieve shortness...

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Antibacterial activity of *Muntingia Calabura* Lam. against some selected bacteria causing mastitis

Puguh Sujarwodojo, Thohari Imam, Tri Saputra Firmansyah, Ridhowi Aswah

The use of herbal plants are widely known to be used in the treatment of various infectious diseases throughout the history of mankind. The aim of this study was to determine the effectiveness of extract *Muntingia Calabura* L at different storage (refrigerator vs. room temperature) and time duration (0,2,4,6,8...

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Successful of Artificial Insemination by Using Chilled Semen on Brahman Cross Cows

Aulia Puspita Anugra Yekti, Enike Dwi Kusumawati, Kuswati Kuswati, Aswah Ridhowi, Herni Sudarwati, Nurul Isnaini, Trinil Susilawati

Successful of artificial insemination by using frozen semen is relatively low, because of decreasing of sperm motility after frozen process. In this study, the chilled semen was used to increase the successful of artificial insemination. The purpose of this study was to evaluate the successful of artificial...

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The Effect of Sexing Process by Using Density Gradient Centrifugation Percoll and Frozen Method to Sperm Motility and Membrane Damage of Ongole Crossbred Bull

Trinil Susilawati, Enike Dwi Kusumawati, Nurul Isnaini, Aulia Puspita Anugra Yekti, Herni Sudarwati, Aswah Ridhowi

Artificial insemination by using semen sexing aims to improve the genetic quality and to get calf with expected gender. Sexing by using density gradient centrifugation percoll and sedimentation egg whites has been frozen successfully. This study aims to determine the effect of sexing process by using...

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Effect of Follicle Size on Metaphase II and Cleavage Rate of Goat Oocyte

Sri Wahjuningsih, Muhammad Nur Ihsan

The aim of this research was to determine the effect of follicle size on Metaphase II and cleavage rate of Goat Oocyte. Ovaries from slaughterhouse transported to the laboratory within 2 h of slaughtering in normal saline. The ovaries were cut and classified two classes of follicle size : small...

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Antifertility Effect of *Centella asiatica* (L) Urban and *Plucea indica* (L) Urban on the Number of Follicles, Antioxidant Activity and Hormonal Profile of White Rat's Ovaries

Bayyinatul Muchtaromah, Mukholifah Mukholifah, Ihda Sayidatun Nasiroh, Mujahidin Ahmad, Romaidi Romaidi

Antifertility agents with safety and effectiveness in terms of minimum side effects have always been a subject of debate. Many studies have been conducted on plants to observe the antifertility effect, but majority of them were toxic. *Centella asiatica* and *Plucea indica* leaves have been traditionally...

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Profiling OVGP Protein in Oviductal Fluid of Kacang Goats in Malang

Herawati Herawati, Aulia Firmawati, Herlina Pratiwi, Nurul Isnaini

Frozen semen supplemented by Oviduct Specific Glycoprotein is a new way to solve the decrease of in vitro fertility on goats caused by polysperm and increase efficiency of artificial insemination on goats. This study was aimed to determine Oviduc Specific Glycoprotein profile in oviductal fluid of Kacang...

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Supplementation of Mangosteen (*Garcinia mangostana*) Pericarp Filtrate in Tris-egg yolk-based Diluent on Buck Sperm Membrane Integrity

Nurul Isnaini, Nuryadi Nuryadi, Eko Nugroho

This study was conducted to evaluate supplementation of Mangosteen (*Garcinia mangostana*) pericarp filtrate in a tris-egg yolk-based diluent on buck sperm membrane integrity. Semen was collected from 5 bucks by artificial vagina method. Fresh semen evaluated for colour, pH, volume, concentration,...

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Contamination of Antibiotic Resistant Enterobacteriaceae

Denny Widaya Lukman, Hadri Latif, Herwin Pisestyani, Trioso Purnawarman, Eddy Sukmawinata, Ardilasunu Wicaksono, Chaerul Basri, Etih Sudarnika, Abdul Zahid Ilyas, Mirnawati Sudarwanto

This study was aimed to determine Enterobacteriaceae contamination that were resistant against antibiotics in duck meat which was related with food safety for the consumers. Total of 52 samples of ducks were taken from 5 subdistricts in Bogor District, i.e., Ciomas, Gunung Sindur, Klapanunggal, Jasinga,...

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Identification and Characterization of a Cellulase from Bacterial of Indigenous of Rice Bran

Akyunul Jannah, Aulani`am Aulani`am, Tri Ardyati, Suharjono Suharjono

Cellulolytic bacteria have been isolated from rice mill waste (rice bran) that isolates BE 8 and BE 14. Cellulolytic bacteria is a producer of cellulase enzymes involved in the degradation of cellulose waste, textiles, detergents, glucose industrial etc. The purpose of this study was to molecular identification...

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Editors

Dr. Masdiana C. Padaga

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Dyah Kinasih Wuragil, M.Sc

Acha Maulidina

ISSN

Part of series: AHSR, ISSN: 2468-5739, volume: 5

ISBN

978-94-6252-481-1

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The Potential of *Brucella Suis* Local Isolates as Vaccine Candidate for Controlling Swine Brucellosis In Indonesia

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Abstract

Brucellosis in pigs is not only causing great economic losses due to a decrease in productivity of livestock but also is zoonotic. Prevention efforts mainly addressed to vaccination and sanitary measures and governance. S19 and RB51 vaccine does not provide protection against infection and abortion in pigs infected with *Brucella suis*. The purpose of the study was to develop *Brucella suis* local isolates vaccine as a vaccine candidate against Brucellosis in pigs and then to prevent the spread of brucellosis. The method used laboratory exploration followed by experimental studies using mice. This study used a factorial design. *F test* analysis used to test the titer of antibodies through CFT methods. The results showed that local isolates attenuated *Brucella suis* at a concentration of 10^8 were able to show a good antibody titer 128. This study concluded that *Brucella suis* local isolates has the ability to protect mice from infection *Brucella suis* bacteria and has high immunogenicity.

Keywords: *Brucella suis*, Vaccine Candidate, Local isolates

1. INTRODUCTION

Brucellosis in pigs is a disease caused by *Brucella suis*. Brucella can be transferred from one individual to another individual through several ways such as direct contact with body fluids or through the intermediary of the genitals. In pigs, the clinical symptoms of the disease are more common in adult cattle, including abortion, infertility, orchitis and posterior paralysis. Brucellosis in pigs is not only cause great economic losses due to a decrease in productivity of livestock but also zoonotic. Brucellosis is a zoonotic disease that causes intermittent fever in humans. Those affected are generally associated with work such as livestock farmers, veterinarians and abattoir workers. *Brucella suis* is a zoonotic disease which can be transmitted to humans who eat pork with improper handling and well cooked, although transmission is more often occurs through direct contact with infected animal (Priadi, 1992).

Economic losses due to brucellosis such as decreased demand in market, decreased production, fetus mortality, effect to management system implementation, increased infertility, culling animal, epidemic disease in humans, added expenditures for research and development of technical laboratory, added expenditures for controlling and handling the disease (Sudiby, 1998). Elimination of the disease either on a group or population is considered as the most effective way to prevent the spread of the disease in pigs (Alton, 1990). Although the disease is

found to be endemic with a high prevalence in Latin America, Southeast Asia, China and the countries of Oceania (Corbel, 1997). Elimination method performed by *test and slaughter* with compensation is a way of controlling the swine brucellosis. The implementation of *the test and slaughter* has not yet optimal due to the lack of compensation costs (Ewalt, et.al, 1997). Prevention efforts mainly addressed to vaccination and sanitary measures and governance. S19 vaccine does not provide protection against infection and abortion in pigs infected with *Brucella suis*. *B. suis* Strain 2 (S2) vaccines which was developed in China and was a strain attenuation of *Brucella suis* type 1 used extensively was experiencing failures (Nicoletti, P. 1990). In solving above problems, it needs to be pursued formation of local strains in order to improve the performance of the vaccine, as a model bacterial vaccine, which is expected to produce a better immune response. Based on the above background it is necessary to do research in the use of *Brucella suis* local isolates as vaccine candidates brucellosis in pigs, which is expected to produce a potential vaccine for the prevention of Brucellosis disease in Indonesia.

Purpose of the study

Develop *Brucella suis* vaccine local isolates as vaccine candidates against brucellosis in pigs, which is expected to prevent the spread of brucellosis. It was also to determine the serological response to study antibody reactions and the progress of *Brucella suis* vaccine local isolates and S19 also RB51. From the results of this study are expected to obtain information on the condition of brucellosis in pigs and brucellosis vaccine progress in pigs by using *brucella suis* local isolates.

2. METHODS

This study used laboratory exploration and continued with experimental research by design *the randomized post test only control group design*. In the experiment, animals were grouped into five (5) groups: the first group with no treatment, the second group with positive control infected with *Brucella suis* local isolates, the third group vaccinated by *Brucella abortus* S19 vaccine, the fourth group vaccinated by RB51 vaccine and the fifth group vaccinated by *Brucella suis* local isolates. This research was conducted at the Microbiology Laboratory, Faculty of Veterinary Medicine Airlangga University, and the Center for Veterinary Wates Yogyakarta.

T

he Procedures:

Five groups of mice, each containing 5 mice were inoculated intramuscularly with a dose of 1×10^6 CFU of *Brucella suis* local isolates that inactivated intramuscularly injected 0.2 ml per mice, *Brucella abortus* strain 19 with a dose of 1×10^6 CFU that injected intramuscularly 0.2 ml per mice, RB51 vaccine with a dose of 0.1 ml that injected intramuscularly per mice. The fourth group, with the same number of mice, acted as negative control and only injected with 0.2 ml of PBS while the fifth group acted as positive control and injected with 0.2 ml of PBS. On the 38th day, all groups were challenged through injection 0.1 ml of 1×10^6 CFU of *Brucella suis* local isolates except negative control group. The whole mice were killed on the 15th day post-challenge, the antibody titers were seen with the CFT.

In this research was taken first vaccination and executed one booster. Mice were adapted for 10 days with individual cages completed with husk and feeding a day with water drinking given *ad libitum*. Vaccination with the division of the group:

P0(-) = without treatment

PO(+) = without vaccine, infected with *Brucella suis* local isolates 0.1 intramuscular

P1 = RB51 0.1 ml intramuscular vaccinated per mice and infected with *Brucella suis* local isolates 0.1 ml intramuscular per mice

P2 = *Brucella abortus* S19 vaccinated with concentration $1,0 \times 10^8$ of 0.2 ml intramuscular per mice and infected with *Brucella suis* local isolates 0.1 ml intramuscular per mice

P3 = *Brucella suis* local isolates vaccinated with concentration $1,0 \times 10^6$ of 0.2 ml intramuscular per mice and infected with *Brucella suis* local isolates 0.1 ml intramuscular per mice

Statistic Analysis

This study used a completely randomized design. Analysis of variance (ANOVA) used for antibody titer from CFT test results, and used for testing the challenge test. Significant difference value was determined at the 95% confidence interval.

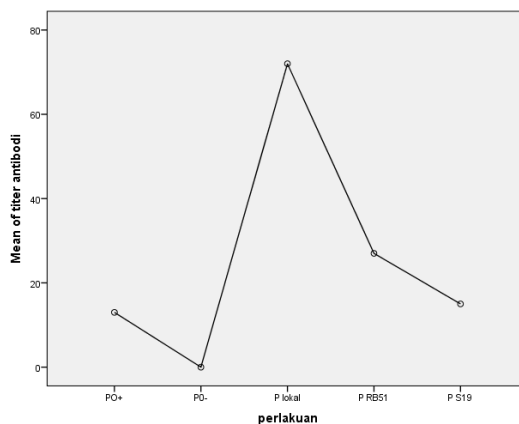
3. RESULTS AND DISCUSSION

This study used indicator of antibody titers which used to assess the ability of vaccine to protect. The antibody titers results can be seen in Table 1.

Table 1. Antibody titers in *Brucella suis* for each treatment

Treatment	Average and Deviation Standard of Antibody Titers
P0-	$0^a \pm 0,000$
PO+	$13^a \pm 12,806$
P S19	$15^a \pm 12,383$
P RB51	$27^a \pm 27,592$
P <i>Brucella suis</i> local	$72^b \pm 40,266$

Description: Different superscript showed significant differences among treatments ($p < 0.05$)



Graphics Antibody Titer

In this study, the indicator used to assess the ability of the vaccine protection was antibody titers. Groups of mice were only inoculated with PBS solution (negative control) resulted to have the lowest antibody titer: 0 (zero) than the other groups. The highest antibody titers on the treatment of inoculated *Brucella suis* local isolates with titer 128 and followed by RB51 vaccine with titer 64 and strain 19 with titer 32, as well as the positive control with titer 32. Statistics analysis

showed that antibody titers by treatment with *Brucella suis* local isolates were different significantly ($P < 0.05$) compared with the group that received both RB51 vaccine and the group without vaccinated of strain 19. This indicates that inoculation with *Brucella suis* local isolates strain was successfully stimulates the formation mechanism of high immunity then be able to withstand the infection of *B. suis* (Bundle, et.al, 1989). The treatment groups that were not significantly different ($P > 0.05$) imply equality potential of both vaccines against *Brucella* infection. The ability of *Brucella suis* local isolates to induce weak antibody titers gives advantageous in consideration as a vaccine candidate.

4. CONCLUSIONS

This study concluded that *Brucella suis* local isolates has the ability to protect mice from bacteria infection of *Brucella suis*, and has high immunogenicity by antibody titers 128 compared with the standard vaccine strain 19 with antibody titers 32 and RB51 with antibody titers 64.

ACKNOWLEDGEMENTS

We thank *Ditjen DIKTI* (Directorate General of Higher Education) for donating this study through scheme *Program Penelitian Unggulan Perguruan Tinggi (PUPT)* / Universities Leading Research Programme, Decentralization Year 2016.

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