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2020: Volume 11, Issue 7

Short Communication

- **Development of Efficacy Based Foot Care by Family Models to Family Behavior in Prevention of Diabetic Foot Ulcer**

Nursalam Nursalam, Nuh Huda, Tintin Sukartini.

SRP. 2020; 11(7): 240 - 245

- [» Abstract](#)
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- DOI: 10.31838/srp.2020.7.38

Review Article

- **Ciprofloxacin- and gentamicin-mediated inhibition of Pseudomonas aeruginosa biofilms is enhanced when combined the volatile oil from Eucalyptus camaldulensis**

Al-Moghira K. Al-Qaysi, Mushtak T.S. Al-Ouqaili, Safaa A.L. Al-Meani.

SRP. 2020; 11(7): 98 - 105

- [» Abstract](#)
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- DOI: 10.31838/srp.2020.7.16

Review Article

- **COVID-19: Drug Development and Kidney Related Problems**

Mohammad Rudiansyah, Hendra Wana Nur' amin, Dwi Aris Agung Nugrahaningsih, Ria Bandiara, Rully Marsis Amirullah Roesli.

SRP. 2020; 11(7): 106 - 112

- [» Abstract](#)
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- DOI: 10.31838/srp.2020.7.17

Short Communication

- **Antioxidant and Antimicrobial Activities of Methanolic Extracts of *Scorodocarpus borneensis* Becc**

Yohana Sutiknyawati Kusuma Dewi, Cico Jhon Karunia Simamora, Dzul Fadly.

SRP. 2020; 11(7): 246 - 252

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- DOI: 10.31838/srp.2020.7.39

Review Article

- **Evaluating the Effect of Polyherbal Extract of *Allium sativum*, *Curcuma mangga*, and *Acorus calamus* on Immunomodulation and Ovarian Activity in Cisplatin-Induced Rats**

Bayyinatul Muchtaromah, Evika Sandi Savitri, Atik Naily Fauziyah, Muhammad Basyaruddin, Hery Purnobasuki, Erma Safitri, Wira Eka Putra, Jessica Andriani.

SRP. 2020; 11(7): 485 - 489

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- DOI: 10.31838/srp.2020.7.71

Review Article

- **THE EXPERIENCE OF NURSES IN HANDLING BUSINESS CLASS PATIENT IN COMMERCIAL MEDICAL ESCORT IN INDONESIA**

Ronal Surya Aditya, Ah Yusuf, Fitriana Kurniasari Solikhah, Riza Fikriana, Wiwit Dwi Nurbadriyah, Setyo Budi Kurniawan, Wiwin Winarni, Andikawati Fitriasisari.

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- DOI: 10.31838/srp.2020.7.19

Short Communication

- **Cloud-Point Extraction and Spectrophotometric Determination of Nifedipine in Pharmaceutical Dosage Forms**

Sadeem Subhi Abed.

SRP. 2020; 11(7): 125 - 130

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- DOI: 10.31838/srp.2020.7.20

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- **Mental Workload and Stress with Blood Glucose Level: A Correlational Study among Lecturers who are Structural Officers at the University**

Kusnanto Kusnanto, Fina Ainur Rohmah, Andri Setiya Wahyudi, Hidayat Arifin.

SRP. 2020; 11(7): 253 - 257

- [» Abstract](#)
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- DOI: 10.31838/srp.2020.7.40

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- **The Effect of Employee Involvement on Job Satisfaction**

A. Yuspahrudin, Anis Eliyana, Agung Dharmawan Buchdadi, Hamidah, Tuty Sariwulan, Kholidya Muhaziroh.

SRP. 2020; 11(7): 490 - 498

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- DOI: 10.31838/srp.2020.7.72

Review Article

- **P-Cash App Based on Microsoft Office Access to Improve Learning Outcomes of Vocational High School Students**

Madzhatul Churiyah, Dewi Ayu Sakdiyyah.

SRP. 2020; 11(7): 499 - 506

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- DOI: 10.31838/srp.2020.7.73

Short Communication

- **Disaster Nursing Model: An Approach to Reduce Post-Traumatic Stress Syndrome Prevalence in Nurses**

Mustikasari Mustikasari, Harif Fadhillah, Anggi Pratiwi, Rina Setiana, Nursalam Nursalam.

SRP. 2020; 11(7): 265 - 269

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- DOI: 10.31838/srp.2020.7.42

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- **A Review of Extended Spectrum β -Lactamase (ESBL) Producing *Klebsiella pneumoniae* and Multidrug Resistant (MDR) on Companion Animals**

Katty Hendriana Priscilia Riwu, Mustofa Helmi Effendi, Fedik Abdul Rantam.

SRP. 2020; 11(7): 270 - 277

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- DOI: 10.31838/srp.2020.7.43

Review Article

- **Immunomodulatory Impact of Herbs and Probiotics in Type 2 Diabetic Rat Model**

HODA A. ALI, SAHAR H. MOHAMED, REHAM M. ALGHESHAIRY, HEND F. ALHARBI.

SRP. 2020; 11(7): 278 - 289

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Review Article

- **Detection of Enterotoxin type B gene on Methicillin Resistant *Staphylococcus aureus* (MRSA) isolated from raw milk in East Java, Indonesia**

Sancaka Chasyer Ramandinianto, Aswin Rafif Khairullah, Mustofa Helmi Effendi, Wiwiek Tyasningsih, Jola Rahmahani.

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- DOI: 10.31838/srp.2020.7.45

Short Communication

- **Development and Validation of Doxorubicin Hydrochloride and Doxorubicinol in Plasma Using Liquid Chromatography-Tandem Mass Spectrometry**

YAHDIANA HARAHAP, HERMAN SURYADI, AGATHA C WINARTI.

SRP. 2020; 11(7): 299 - 303

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- DOI: 10.31838/srp.2020.7.46

Review Article

- **Self-Efficacy of Patients at High Risk for Stroke in Reducing Risk Factors**

Uke Pemila, Ratna Sitorus, Agung Waluyo, Sutanto Priyo Hastono.

SRP. 2020; 11(7): 515 - 518

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- DOI: 10.31838/srp.2020.7.75

Review Article

- **The Application of QR Code Technology to Create the Value-Added Products for The Baan Klong Peek Neur Beehive Community Enterprise Group at Tambon Suankhan, Nakhon Si Thammarat Province**

Bamrung Srinounpan, Chawanrat Srinounpan, Patcharee Sumethokul, Ataul Karim Patwary.

SRP. 2020; 11(7): 519 - 528

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- DOI: 10.31838/srp.2020.7.76

Review Article

- **Effect of Transformational and Transactional Leadership Toward Iso 22000:2018 Food Safety Certified Company Performance**

Zaenal Abidina, Heddyb, Yuseva Gita Ari Astutic, Suhroji Adhad, Khasan Asrorie, Desty Endrawati Subrotot, Vadilla Mutia Zaharag, Heri Sapari Kahpih, Agus Purwanto, Octoberry Julyantoi, Enji Azizik.

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- DOI: 10.31838/srp.2020.7.77

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- **The Influence of Transformational Leadership, Job Satisfaction and Organizational Citizenship Behavior on the Performance of Islamic School Teachers**

Bahdin Nur Tanjunga, Yurni Rahmanb, Budiyantoc, Badawid, Aep Tata Suryanae, Warni Tune Sumarf, Abdul Mufidg, Agus Purwantoh, Wartoi.

SRP. 2020; 11(7): 539 - 546

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- DOI: 10.31838/srp.2020.7.78

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- **Indonesian DOCTORAL Students ARTICLE Publication Barriers in International High Impact Journals: A Mixed METHODS RESEARCH**

Agus Purwanto, Mochammad Fahlevi, Suesthi Maharani, Fauzi Muharom, Suryanto, Wahyu Setyaningsih, A. Faidi, Al Azhar, Rudy Pramono, Innocentius Bernarto.

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- DOI: 10.31838/srp.2020.7.79

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- **Effect of Hard Skills, Soft Skills, Organizational Learning and Innovation Capability on Islamic University Lecturers? Performance**

Teguh Setiawan Wibowo, Alfi Qonita Badi'ati, Arna Asna Annisa, Mohd Khaidir Abdul Wahab, M. Rifa Jamaludin, Muhamad Rozikan, Abdul Mufid, Khaerul Fahmi, Agus Purwanto, Akhmad Muhaini.

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- DOI: 10.31838/srp.2020.7.80

Short Communication

- **Spiritual-Based Motivational Self-Diabetic Management on the Self-Efficacy, Self-Care, and HbA1c of Type 2 Diabetes Mellitus**

Kusnanto Kusnanto, Ninuk Dian Kurniawati, Abu Bakar, Erna Dwi Wahyuni, Hidayat Arifin, Rifky Octavia Pradipta.

SRP. 2020; 11(7): 304 - 308

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- DOI: 10.31838/srp.2020.7.47

Review Article

- **University Students Online Learning System During Covid-19 Pandemic: Advantages, Constraints and Solutions**

Fatonia, Nurce Arifiatib, Ety Nurkhayatic, Ela Nurdiawatid, Fidziahe, Giantoro Pamungkasf, Suhroji Adhag, Irawanh, Agus Purwantoi, Octoberry Julyantoj, Enji Azizik.

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- DOI: 10.31838/srp.2020.7.81

Short Communication

- **Manufacture and Assessment of the absorption capability of famotidine to 3D-nano-cellulose network**

Van Hung Mai, Xuan Thanh Nguyen, Phuong Lien Lai, Thuy Linh Do, Thi Phuong Le.

SRP. 2020; 11(7): 309 - 313

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- DOI: 10.31838/srp.2020.7.48

Review Article

- **Transformational or Transactional Leadership Style: Which Affects Work Satisfaction and Performance of Islamic University Lecturers During COVID-19 Pandemic?**

Yunita Noor Azizaha, Muhammad Khairul Rijalb, Rumainurc, Umi Nuriyatur Rohmahd, Syatria Adymas Pranajayae, Zulaecha Ngiuf, Abdul Mufidg, Agus Purwantoh, Dahlia Haliah Ma`ui.

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- **Comparison of Post-Caesarean Section Wound Healing Methods Based on Reeda Scale and Platelet Lymphocyte Ratio**

Ernawati Ernawati, Amirah Amirah, Christrijogo Sumartono, Aditiawarman Aditiawarman.

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- DOI: 10.31838/srp.2020.7.49

Review Article

- **THE INFLUENCE OF LEADERSHIP STYLE ON INNOVATION CAPABILITIES OF ISLAMIC SCHOOL TEACHERS IN ORGANIZATIONAL LEARNING PERSPECTIVE DURING COVID-19 PANDEMIC**

Roojil Fadillah, Miftahus Surur, Elfrianto, Ahmad Khoirur Roziqin, Achmad Suhaili, Rina Asih Handayani, Abdul Mufid, Agus Purwanto, Muhajir, Khaerul Fahmi.

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- DOI: 10.31838/srp.2020.7.83

Short Communication

- **The Synthesis and Characterisation of a New Trigger's Base Content Methoxy Group**

Sadiq A. Karim, Mohammed H. Said, Jinan A. Abd, Asim A. Balakit, Ayad F. Alkaim.

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- DOI: 10.31838/srp.2020.7.50

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- **Teratogenicity of Pyocyanin Pigment Isolated from Local Pseudomonas aeruginosa Isolates on Mice Neural Tube Defects (NTDs) and other Abnormities**

Louay M. Al-Ani, Maha R. Ghreeb, Huda M. Mahmood, Bilal J.M. Aldahham.

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- DOI: 10.31838/srp.2020.7.84

Review Article

- **Antimalarial Activity of Lamiaceae Family Plants: Review**

Ami Tjitraesmi, Moelyono Moektiwardoyo, Yasmiwar Susilawati, Yoshihito Shiono.

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- DOI: 10.31838/srp.2020.7.51

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- **Green HRM and Green Innovation: Can Green Transformational Leadership Moderate: Case of Pharmaceutical Firms in Australia**

Umair Ahmeda, Soleman Mozammelb, Fazluz Zamanc.

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- DOI: 10.31838/srp.2020.7.86

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- **The Effect of Soil Orders and Mycorrhizal Biofertilizer on Growth and Yield of Aceh's Organic Patchouli**

SYAFRUDDIN SYAFRUDDIN, SYAKUR SYAKUR, SAIFUL SAIFUL, ELLY SUSANTI, MANFARIZAH MANFARIZAH, MUNAWAR KHALIL, CUT NINA HERLINA, IDAWANNI IDAWANNI, FENTY FERAYANTI.

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- DOI: 10.31838/srp.2020.7.52

Review Article

- **EFFECTIVENESS OF SMART BRAIN EXERCISE AND LOVING TOUCH THERAPY ON BEHAVIOR AMONG CHILDREN WITH ATTENTION DEFICIT HYPERACTIVE DISORDER (ADHD)**

Sutarmi, Siti Kistimbar, Erni Nuryanti.

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- DOI: 10.31838/srp.2020.7.87

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- **Exploring the nexus between the HR practices and work engagement: The mediating role of Job Demand**

Karina Anatasia Asmara Silitonga, Fakhrorazi Ahmad, Cipto Winner Simanjuntak, Diny Atrizka.

SRP. 2020; 11(7): 342 - 351

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- **Influence of a Pigment Protein Fraction from *Chlorella vulgaris* Isolated in Indonesia on γ -Actin and MHC-1 Response to Viral Infected Humpback Grouper**

Uun Yanuhar, Muhammad Musa, Diana Arfiati, Qomariyatus Sholihah, Ach. Khumaid, Nico Rahman Caesar.

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- DOI: 10.31838/srp.2020.7.54

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- **Management of Parenting Preparedness at Home in COVID-2019 Pandemic based on Individual and Family Self-Management Theory (IFSMT): A Systematic Review**

Resti Utami, Sri Iswati, Christrijogo Sumartono Waloejo, Moses Glorino Rumambo Pandin.

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- DOI: 10.31838/srp.2020.7.88

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- **Identifying and Prioritizing the Factors Affecting the Agility of the Supply Chain of Pharmaceutical Company using Multi-Criteria Decision-Making Methods in COVID-19 Pandemic**

Mohammadreza Jamshidianehrani, Ali Ahmadzadeh, Mahtab Rahimisadr, Milad Abdolmohammadi.

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- DOI: 10.31838/srp.2020.7.56

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- **FAMILY EMPOWERMENT IN THE COVID-19 PANDEMIC WITH THE FAMILY-CENTERED NURSING APPROACH AND THE UTILIZATION OF FAMILY MEDICINAL PLANTS: A SYSTEMATIC REVIEW**

I Dewa Ayu Rismayanti, Christojogo Sumartono Waloejo, Sri Iswati, Moses Glorino Rumambo Pandin.

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- DOI: 10.31838/srp.2020.7.89

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- **A Review on the Phytochemical Composition and the Traditional Medicinal Uses of *Salvia argentea* (Lamiaceae)**

Kadda Hachem, Yasmina Benabdesslem, Djallal Eddine Houari Adli, Amira Chikhi, Khaled Kahloula.

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- DOI: 10.31838/srp.2020.7.18

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- **The Effect of *Annona Muricata* Leaf Ethanolic Extract on Insulin Expression and Glucagon-Like Peptide-1 Level in Alloxan-Induced Mice**

Supri I. Handayani, Syafira N. Dewi, Marini Stephanie, Siti Nurbaya, Vivitri D. Prasasty.

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- DOI: 10.31838/srp.2020.7.55

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- **Quality of Work Life's Factors and Their Impacts on Organizational Commitments**

Dodot Adikoeswanto, Anis Eliyana, Hamidah, Tuti Sariwulan, Agung Dharmawan Buchdadi, Fadilla Firda.

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- DOI: 10.31838/srp.2020.7.65

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- **Knowledge, Attitudes, and Perceptions of Healthcare Professionals towards Early Referral and Using Statins in Non-dialysis CKD Patients**

Abeer Mohammad Kharshid, Syed Azhar Syed Sulaiman, Mohamed J. Saadh, Haneen Barakat, Israa H. Al-Ani, Riad M. Awad, Mohammad M. Hailat, Wael Abu Dayyih.

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- DOI: 10.31838/srp.2020.7.69

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- **Impact of IBA and Ethephon Combination on Root Biomass Production of Javanese Ginseng (*Talinum paniculatum* Gaertn) Cuttings under Aeroponic System**

Arif Yachyaa, Y.S. Wulan Manuharab, Alvinda Novi Kristantic.

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- DOI: 10.31838/srp.2020.7.74

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- **Preparation, In Vitro and In Vivo Studies of Vitamin B12 Loaded Implants**

Jabar A Faraj, Shaimaa M. Mohammed, Ihab I. Al-Khalifa, Sabah Nema Al-Thamer, Kadum A. Al Shareffi, Patric P Deluca.

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- DOI: 10.31838/srp.2020.7.01

Short Communication

- **Investigation of Crystallinity Characterization of Bamboo Fibers Using Xylanase from *Aspergillus nidulans***

Noor T. Hamdan.

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- **Effects of omega-3 on thyroid function tests in healthy volunteers**

Mohannad E. Qazzaz, Mohanad Alfahad, Fawaz A. Alassaf, Mohammed N. Abed, Mahmood H. M. Jasim and Imad A-J Thanoon.

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- DOI: 10.31838/srp.2020.7.03

Short Communication

- **Expression of LM TK 1 and evaluation of its ability to activate nucleoside analogues in *E. coli***

Safaa Abed Latef Al Meani.

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- DOI: 10.31838/srp.2020.7.04

Short Communication

- **Legal Dimensions of Public Health with Special Reference to COVID-19 Pandemic in India**

Md. Zafar Mahfooz Nomani, Rehana Parveen

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- **The Role of Curcumin as An Antimalarial Agent**

Andromeda, Savira Ekawardhani, Afiat Berbudi.

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- **Knowledge and awareness of community toward COVID-19 in Jordan: A cross-sectional study**

Alaa Abu Zaid, Muna Barakat, Rajaa A. Al-Qudah, Saba Albetawi, 5Alaa Hammad.

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- **The Effectivity of Kerandang Fish (*Channa pleurophthalma* Blkr) Fin Waste as an Anti-Skin Allergies Agent**

Aryani, Putut Har Riyadi.

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- DOI: 10.31838/srp.2020.7.06

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- **Freeze-Dried Liposome Formulation for Small Molecules, Nucleic Acid, and Protein Delivery**

Raditya Weka Nugraheni, Nur Aini Mulyadi, Helmy Yusuf.

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- DOI: 10.31838/srp.2020.7.23

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- **Utilization of natural stabilizer to prepare liposomal conjugate for the newly developed aptamer**

Ammar Qusay, Nidhal K. Marie, Basma Talib Al-Sudani.

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- DOI: 10.31838/srp.2020.7.07

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- **Psychosocial and Occupational Impact Assessment due to Internet Addiction: A Critical Review**

Senthil Vadivel Vadivu, Supat Chupradit.

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- DOI: 10.31838/srp.2020.7.24

Review Article

- **Cerebral Metastases as a Cause of Non-Traumatic Intracranial Hemorrhage: Long-Term Results of Surgical Treatment**

Prozorenko E.V, Davydov M.M, Sevyan N.V, Glushakov R.I, Mitrofanov A.A.

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- DOI: 10.31838/srp.2020.7.25

Short Communication

- **The Possible Etiological Role of CMV & EBV Latent Infections in Polycystic Ovary Syndrome Iraqi patients**

Hazima Mossa Alabassi, Zahraa Hussein M. Kadri, Majid Mohammed Mahmood, Mais Isam AL-Kubisi.

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- DOI: 10.31838/srp.2020.7.08

Review Article

- **The Efficacy and Safety of Antivirus Drugs for COVID-19: A Systematic Review**

Muhammad Ardi Munir, Hendra Kuganda, Amirah Basry.

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- DOI: 10.31838/srp.2020.7.26

Review Article

- **Psychological Contract Violation: A Bridge between Unethical Behavior and Trust**

Yuris Danilwan, Dewi Budhiartini Yuli Isnaini, Ikbar Pratama.

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- DOI: 10.31838/srp.2020.7.09

Short Communication

- **Reflections of the Anti-inflammatory Properties of Aspirin on Cardiovascular Disease and Diabetes Mellitus-related Pathological Markers**

Hind Makki Abdlwahid, Majid Mohammed Mahmood, Asaad F. Albayati.

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- DOI: 10.31838/srp.2020.7.58

Review Article

- **Pharmacological Aspects of Statins Are Relevant to Their Structural and Physicochemical Properties**

Zeina Althanoon, Ibrahim M Faisal, Abdulla A Ahmad, Marwan M. Merkhan.

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Short Communication

- **Development of Instant Powder with the Addition of Moringa Oleifera Leaf Powder as Complementary Food for Infants 6-12 Months Old**

Zakaria, Suriani Rauf, Andi Salim, Nurdin Rahman, Bohari.

SRP. 2020; 11(7): 61 - 60

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- DOI: 10.31838/srp.2020.7.10

Short Communication

- **CTX Gene of Extended Spectrum Beta-Lactamase (ESBL) Producing Escherichia coli on Broilers in Blitar, Indonesia**

Freshinta Jellia Wibisono, Bambang Sumiarto, Tri Untari, Mustofa Helmi Effendi, Dian Ayu Permatasari, Adiana Mutamsari Witaningrum.

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- DOI: 10.31838/srp.2020.7.59

Short Communication

- **Antibacterial and Anti-inflammatory Activities of Ethanol Extract Obtained from The Hooks of *Uncaria tomentosa* (Wild. Ex Schult) DC Originated Kalimantan, Indonesia**

Warsidah, Dzul Fadly, Bohari.

SRP. 2020; 11(7): 65 - 70

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- DOI: 10.31838/srp.2020.7.11

Review Article

- **A Review of Livestock-Associated Methicillin-Resistant *Staphylococcus aureus* (LA-MRSA) on Bovine Mastitis**

Aswin Rafif Khairullah, Sancaka Cashyer Ramandinianto, Mustofa Helmi Effendi.

SRP. 2020; 11(7): 172 - 183

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- DOI: 10.31838/srp.2020.7.28

Short Communication

- **The Role of Parents to Prevent Early Adolescents Smoking Behavior: A Qualitative Study on Adolescents in Tegal City, Indonesia**

Agus Susanto, Hartono Hartono, Ismi Dwi Astuti Nurhaeni, Drajat Tri Kartono.

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Short Communication

- **In Vitro Study of Antioxidant Activity of Carboxymethyl Chitosan derived from Silkworm (*Bombyx mori* L.) Pupa against Human Plasma Lipid Peroxidation**

Dzul Fadly, Clara M. Kusharto, Lilik Kustiyah, Pipih Suptijah, Yuges Saputri Muttalib, Bohari.

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- DOI: 10.31838/srp.2020.7.13

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- **Study of Patients' Characteristics Getting Treated at Muhammadiyah Hospitals in East Java**

Abdul Aziz Alimul hidayat, Sukadiono, Musrifatul Uliyah, Enniq Mazayudha.

SRP. 2020; 11(7): 184 - 187

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- DOI: 10.31838/srp.2020.7.29

Short Communication

- **Characterization of the Spike Glycoprotein and Construction of an Epitope-Based Vaccine Candidate against Indonesian SARS-CoV-2: In Silico Study**

Irine Normalina, Setyarina Indrasari, Reviany V. Nidom, Muhammad K. J. Kusala, M. Yusuf Alamudi, Kuncoro P. Santoso, Kadek Rachmawati, Chairul A. Nidom.

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- DOI: 10.31838/srp.2020.7.60

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- **Health-Related Quality Of Life in Chronic Kidney Disease Patients: A Cross-Sectional Study**

Abeer Mohammad Kharshid, Syed Azhar Syed Sulaiman, Mohamed Jamal Saadh.

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 - DOI: 10.31838/srp.2020.7.30
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- **Phytochemical Compound and Nutritional Value in Black Rice from Java Island, Indonesia**

Fatchiyah Fatchiyah, Dewi Ratih Tirto Sari, Anna Safitri, James RK. Cairns.

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Review Article

- **Immunoinformatic Investigation of Three Structural Protein Genes in Indonesian SARS-CoV-2 Isolates**

Arif N. M. Ansori, Muhammad K. J. Kusala, Irine Normalina, Setyarina Indrasari, Mohammad Y. Alamudi, Reviany V. Nidom, Kuncoro P. Santoso, Kadek Rachmawati, Chairul A. Nidom.

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 - DOI: 10.31838/srp.2020.7.62
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- **Management of COVID-19 Pandemic in the Intensive Care under Scarce of Resources with Palliative Care Approach**

Mochamat Helmi, Djayanti Sari, Andreasta Meliala, Laksono Trisnantoro.

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 - DOI: 10.31838/srp.2020.7.31
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Review Article

- **COVID-19 and Kidney Diseases in Indonesia**

Mohammad Radiansyah, Hendra Wana Nur' amin, Leonardo Lubis, Ria Bandiara, Rully Marsis Amirullah Roesli, Dedi Rachmadi.

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- DOI: 10.31838/srp.2020.7.63

Review Article

- **Activated leukocyte cell adhesion molecule serum levels as a marker in the diagnosis of patients with breast cancer**

Abbas M. Ajeed, Qahtan Adnan Mahdi, Omar F. Abdul- Rasheed, Alaa G. Hussein.

SRP. 2020; 11(7): 82 - 88

- [» Abstract](#)
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- DOI: 10.31838/srp.2020.7.14

Short Communication

- **Synthesis, Characterization, Antimicrobial Investigation and in-silico Screening of Di-imines Derived from 4,4'-Diaminoazobenzene**

Amjid Iqbal, Shan Hazoor.

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- [» Abstract](#)
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- DOI: 10.31838/srp.2020.7.32

Short Communication

- **Influence of Self Ruqyah Treatment on Cortisol Content, Depression, and Quality of Life, Spiritual Life Quality of Cancer Patients Undergoing Radiotherapy in Makassar City, Indonesia**

M. Fais Satrianegara, Anwar Mallongi.

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- DOI: 10.31838/srp.2020.7.33

Review Article

- **The Impact of Toxoplasma gondii Infection on The Serum Zinc, Vitamin D and Malondialdehyde Levels among Recurrent Miscarriage Women in Babylon Province-Iraq**

Hayam Khalis Al-Masoudi, Asmaa Khadhm, Faliha Habeb AL-Karaawy.

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- DOI: 10.31838/srp.2020.7.64

Short Communication

- **Experience of Persons Affected by Leprosy in Facing Psychosocial Problems: A Qualitative Method**

Ah Yusuf, Ronal Surya Aditya, Esti Yunitasari, Aditya Nuraminudin Aziz, Fitriana Kurniasari Solikhah.

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- DOI: 10.31838/srp.2020.7.34

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- **Influence of Gestational Weight Gain on the Development of Complications of Gestational Diabetes Mellitus: A Literature Review**

Orazmuradov A.A., Akhmatova A.N., Savenkova I.V., Arakelyan G.A., Damirova K.F., Haddad Kh., Orazmuradova A.A..

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Short Communication

- **Body Temperature, Glasgow Coma Scale (GCS) and Mortality of Patients with Intracerebral Hemorrhage Stroke**

Abdul Muhith, Teguh Herlambang, Sri Haryuni, Kun Ika Nur Rahayu, Endang Mei Yunalia, Catur Asmarani, Eko winarti, Anwar Mallongi.

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- [» Abstract](#)
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- DOI: 10.31838/srp.2020.7.35

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- **State of Providing Incurably ill Patients with Opioid Analgesics at the Level of Certain Constituent Entities of Russia**

Marina Filippovna Mikaelyan, Irina Nikolaevna Iyro, Lyudmila Alexandrovna Ertel, Andrey Borisovich Goryachev, Rusanov Sergey Nikolaevich, Berezhnaya Elizaveta Sergeevna, Tatyana Gennadyevna Mogilenko, Khachatryan Martyn Milichkovich.

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- DOI: 10.31838/srp.2020.7.67

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- **Preventing Fraud and Deficit Through The Optimization of Health Insurance In Indonesia**

Sri Sunarti, MT Ghozali, Fahni Haris, Ferry Fadzlul Rahman, Rofi Aulia Rahman, Ghozali.

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- **Marketing Research of the Regional Pharmaceutical Market for Enterosorbent Medicinal Drugs**

Taisiya Ivanovna Kabakova, Andrey Borisovich Goryachev, Victoria Viktorovna Prokopenko, Aleksandr Valer'evich Khovanov, Lyudmila Valer'evna Terekhova, Sergey Yur'evich Kondratov, Ekaterina Aleksandrovna Popova.

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- [» Abstract](#)
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- DOI: 10.31838/srp.2020.7.68

Short Communication

- **[Metformin as an Antidepressant in Type 2 Diabetes Mellitus Patients](#)**

Andri Rezano, Afifa Khairinnisa, Savira Ekawardhani.

SRP. 2020; 11(7): 232 - 239

- [» Abstract](#)
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- DOI: 10.31838/srp.2020.7.37

Review Article

- **[Polyprenol and Dolichol Content in the Seed Tissues of *Elaeis guineensis* Jacq. from Commercial Seeds](#)**

Mohammad Basyuni, Rahmah Hayati, Ananda Ratu Tia, Irma Deni, Bejo Slamet, Etti Sartina Siregar.

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- [» Abstract](#)
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- DOI: 10.31838/srp.2020.7.15

Review Article

- **[Perspectives of Orthodontic Care in Children with Special Needs: A Literature Review](#)**

Eka Erwansyah, Sherly Horax, Marhamah F Singgih, Andi Ummul Khaer, Eryanti Abbas.

SRP. 2020; 11(7): 482 - 484

- [» Abstract](#)
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- DOI: 10.31838/srp.2020.7.70

Detection of Enterotoxin type B gene on Methicillin Resistant *Staphylococcus aureus* (MRSA) isolated from raw milk in East Java, Indonesia

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ABSTRACT

Background and Aim: Methicillin resistant *Staphylococcus aureus* (MRSA) has an exponential rate of spread throughout the world and its occurrence rates have been detected in animal / food samples of animal origin. The methicillin resistance (MR) strain is a significant factor in the potential virulence of *Staphylococcus aureus* such as the presence of Staphylococcal enterotoxin B (SEB) which induces a super antigenic effect. This study aims to detect the presence of SEB gene in MRSA isolates that isolated from cow milk in East Java province.

Materials and Methods: Raw cow's milk ingredients were inoculated in enrichment media and mannitol salt agar (MSA) which were then tested using oxacillin and cefoxitin disc diffusion combined with oxacillin screen agar (ORSA) test to detect MRSA strains. All MRSA strains were detected by the SEB gene by the polymerase chain reaction (PCR) method.

Results: In this study confirmed 18 MRSA from 150 samples of cow's milk and detected 4 MRSA isolates having SEB gene with product size 478 bp. In Conclusion: Detection of MRSA carrying the SEB gene in milk can have an impact on the public sector / animal health (milk borne disease) and the economy on livestock. It is very necessary to further analyze the relationship between various virulence factors in MRSA isolates that have the potential to be transmitted through cow's milk in East Java.

Keywords: Methicillin resistant *Staphylococcus aureus* (MRSA), Staphylococcal enterotoxin B (SEB), food safety, milk borne disease.

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INTRODUCTION

Cases of methicillin resistance Staphylococci (MRS) have been discovered since 1962 where the first case of methicillin resistance *Staphylococcus aureus* (MRSA) was detected in humans with exponential development [1]. Various studies have reported detecting MRSA strains in animals or food products of animal origin, one of which is cow's milk with different prevalence variations [2,3,4]. Basically methicillin resistant (MR) in *S. aureus* occurs due to changes in penicillin-binding protein (PBP2a) thereby reducing the affinity of the β lactam antibiotic induced by the *mecA* gene in the staphylococcal cassette chromosome (SCCmec) [5].

Confirmation of methicillin resistance (MR) is a significant factor in the potential for *S. aureus* virulence, such as the relationship of MRSA with the presence of exotoxins-producing genes such as enterotoxin [6]. *Staphylococcus aureus* itself is a commensal bacterium that is commonly found in ruminant skin and mucosa, which has a connection with sub-clinical or clinical mastitis that can be transmitted to humans through contamination of milk, unprocessed milk and other dairy products [7], [8]. Ingestion of Staphylococcal enterotoxins (SE) produced by several strains of *Staphylococcus* through the consumption of raw milk and milk products can lead to the occurrence of milk borne disease (MBD), where such events have been reported in many studies [9,10]. SE has a good level of stability against heat and freezing / drying treatment, but also has resistance to proteolytic enzymes

and low pH so that they can function fully in the digestive tract after consumption even at very low doses, which are 20 ng -1 μ g / ml [11]. Staphylococcal enterotoxin B (SEB) is a dangerous type because it is able to induce a super antigenic effect.

This study aims to detect the presence and evaluate the presence of MRSA strains carrying SEB gene that contaminate cow's milk in east Java by combining 2 methods to detect MRSA namely Cefoxitine disc diffusion and Oxacillin disc diffusion with Oxacillin Resistance Screen Agar (ORSA), then the PCR method for detecting the presence of SEB gene in MRSA isolates. This research information is very important to support strategic and technical decision making by related institutions / institutions for mitigation and prevention of impacts on aspects of public health.

Materials and Methods

Sampling

Total milk samples of 150 dairy cows were collected from 3 Village Unit Cooperatives in Kediri, Probolinggo and Pasuruan areas during October - December 2019. Dairy dairy milk collected directly from milkcan and as many as 15 ml were collected in centrifuge tubes of 50 ml setril (Biologix, BD-T003434). 1 ml of milk is taken aseptically to be inserted into a glass tube steril 10 ml (onemed) containing 4 ml of media broth buffered peptone water by using Syringe 3cc (onemed, AKD 20902900277) [12], then

incubated at 37°C for 24 hours with incubator (Isuzu Model 2-2195, Jica).

Bacteria Isolation and Identification

The results of incubation of enrichment media were cultured on mannitol salt media, the colonies with yellow color that showed the indicator of *S. aureus*, incubated at 37°C for 24 hours. Identification was done by examination based on morphological cultural characteristics, then microscopic examination using Gram's method of staining which shows gram-positive bacteria in the form of coccus and clustering [13]. Biochemical examination was carried out to confirm the *Staphylococcus aureus* species with Catalase test and Coagulase test [14, 15], Catalase test was carried out by dripping 3% hydrogen peroxide (HO) on clean glass and mixing with 1 loop inoculum of bacterial colony [16]. Coagulase test is done by two methods namely Coagulase slide test / clumping factor and Coagulase tube test. Coagulase slide test / clumping factor gives 50 µl rabbit blood plasma dripped on a glass object, then mixed with 1 loop inoculum of bacterial colony, Coagulase tube test using 200 µl blood plasma is added with as many as 3-4 isolate colonies and then incubated 37°C for 24 hours.

Methicillin resistance *Staphylococcus aureus* (MRSA) phenotypic detection

MRSA detection is done by combining the disc diffusion test method using 2 preparations of cefoxitin and oxacillin and then the results are confirmed with the oxacillin screen agar test (ORSA) test. Testing with disc diffusion is performed on Muller Hinton agar (MHA) plates [17]. Isolates that have been isolated and identified will be purified on mannitol salt and incubated at 37°C for 24 hours and then made into 0.5 McFarland's suspension and then taken using Sterile Cotton Swab S (Onemed, AKD 10903610549). The applied evenly on the surface of the MHA media, cefoxitin 30 µg and oxacillin 30 µg was placed side by side with a distance of 4.5 cm and then incubated 37°C for 24 hours and the inhibition zone was measured. In cefoxitin and oxacillin disc diffusion test inhibition zone ≤21mm is an isolate of methicillin resistant (MR). All MR isolates by the disc diffusion test were tested by ORSA, where the ORSA test refers to previous studies [18, 19, 20]. Isolates are taken by several colonies to be used as 0.5 McFarland's suspension and subsequently will be taken using Sterile Cotton Swab S (Onemed, AKD 10903610549) and applied to Oxacillin Screen Agar Base added by Oxacillin Resistance Selective Supplement.

Detection of the SEB gene

All isolates confirmed as MRSA by the disc diffusion test and the ORSA test were tested using PCR to detect the presence of the SEB gene. The DNA extraction process is carried out in accordance with the boiling lysis method [21], taking several bacteria colony to be tested put into eppendorf safe-lock tubes containing 300 µl TE (10 mM Tris, pH 8, 10 mM EDTA) and then and put eppendorf thermoStat™ at 98 ° C for 10 minutes. After that in the centrifuge with 10,000 rpm for 10 minutes. Reaction mixture contains Go tag green master mix, SEB forward and reverse gene primers, DNase free water and DNA template. Amplification was carried out using a thermal cycler machine with a slight modification of the protocol [17], namely predenaturation at 95 ° C for 1 minute followed by 40 cycles of denaturation at 95 ° C for 1 minute, annealing at 55 ° C for 1 minute, and extension at 72 ° C for 1 minute. The amplification step ended with a

final extension at 72 ° C for 2 minutes. Electrophoresis was carried out on the PCR product by taking 10 µl from each - each and put into the well and placing 100 bp markers as much as 6 µl at the edge of the well. Electrophoresis is run at 100 volts for 40 minutes. The positive control used was ATCC 25923 *S. aureus* subsp. *aureus* rosenbach.

Results and Discussion

Bacteria Isolation and Identification

The test results found 76 (50.7%) *S. aureus* isolates from 150 milk samples taken in 3 regions in East Java based on morphological cultural characteristics, gram's staining and biochemical tests. *S. aureus* has phenotypic characteristics of the colonies in the culture media results of mannitol salt agar (MSA), which changes the color of the media from red to yellow which indicates mannitol fermentation while the colonies have varying pigments including white, yellow, and orange [14].

Methicillin resistance *Staphylococcus aureus* (MRSA) phenotypic detection

Test of methicillin resistant using disc diffusion method (Figure - 1) on Muller Hinton Agar (MHA) media showed the total results of isolate resistance to cefoxitin preparations as many as 16 isolates (21%) while oxacillin resistance was 22 isolates (29%) of *Staphylococcus aureus* isolates (Table - 1). The results showed that there were no isolates that were only resistant to cefoxitin in the disc diffusion method, all isolates detected were resistant to cefoxitin also identified to be resistant to oxacillin but there were oxacillin resistant isolates and sensitive to cefoxitin (Table-2). MRSA confirmation is done by combining disc diffusion and ORSA test, where the expression of the blue culture indicator shows positive confirmation results while the white results show negative confirmation results. The ORSA test confirmed the presence of 18 MRSA isolates from the 22 isolates tested (Figure - 2), as shown on Table-2.

Detection of the SEB gene

Isolates that were confirmed as MRSA by phenotypic by ORSA method were tested genotypically by PCR method to detect the presence of SEB genes in isolates. In total there were 20 MRSA isolates tested and detected 4 MRSA isolates had SEB gene with a distribution of 3 isolates from Kediri and 1 isolate from Probolinggo. Test results on isolates using positive control ATCC 25923 can be seen in figures 3-5 (Figures 3-5).

Discussion

Staphylococcus aureus (*S. aureus*) is a bacterium that is often found on the surface of the respiratory mucosa and in the urogenital tract of humans and animals. *Staphylococcus aureus* is a commensal bacterium that is opportunistic infectious in humans and animals [18]. *Staphylococcus aureus* is a pathogenic agent that can cause various infectious diseases from cutaneous to systemic infections in the immunocompetent host resulting in death [19]. The Pharma Innovation Journal research states that *S. aureus* can be transmitted through milk and cause milk borne diseases (MBD) [8]. In this study identified *S. aureus* contamination as many as 76 isolates (50.7%) of 150 samples of cow's milk, this percentage is quite high according to several studies reported in The Pharma Innovation Journal [8] which isolate 57% *Staphylococcal* strains and report the results a study in the Czech Journal of Food Sciences which isolated 47.5% *Staphylococcal* strains from milk samples

from dairy cows tested [20]. In addition, a research report by the Journal of Dairy Science revealed a level of positive *Staphylococcus* (*S. aureus*) coagulase contamination of 51% of milk samples tested [21], the Journal of Food Science reported 52.4% of *S. aureus* contamination in milk samples in milk trials [22] and the International Journal of Food Microbiology which reported 57.3% of *S. aureus* contamination in tested milk [23]. Variations in the percentage of *S. aureus* prevalence compared to other workers may be due to sample size, use of antibiotics in animal husbandry, and hygiene practices among dairy cows. The high incidence of *S. aureus* is an indication of poor hygienic during production, handling and distribution [24].

MRSA infections spread throughout the world in a number that has continued to increase over the past 10 years. The prevalence of MRSA in the Asian region such as Japan and Singapore reaches more than 50% while in the Americas, Australia, some European countries range from 25-50% [25]. Prevalence in the Southeast Asian region, including Indonesia, is not widely known because research on MRSA is still small. The number of MRSA detected in this study was 20 isolates from 24 isolates tested or 13% of the total sample of cow's milk. These results are similar to several other studies reported which isolate the presence of 10.3% MRSA isolates [26] and the Journal of Food Protection report isolates 9.1% MRSA isolates in tested cow's milk [27]. However, the results differ from reports of advances in environmental biology which only detected 1.8% of MRSA in the samples tested [28]. The source of MRSA transmission is due to contact with humans or transport animals, where cows infected with MRSA act as a reservoir and then transmit to other animals or humans [19]. MRSA colonization of cows can be a risk factor for people who have close contact with MRSA infected cows such as veterinarians, farmers, milkers and people who work in slaughterhouses [29]. The detection of MRSA in milk is a matter of concern and requires strict farm management practices, as well as proper sanitation procedures such as storage, handling and transportation. Over the last few decades, the prevalence of MRSA has increased exponentially and is now considered a disease-causing bacterial in which the number of fatal infections caused by MRSA has been reported [17]. Increased pathogenicity of *S. aureus* may be due to the increased prevalence of strains that have the MCC SCC gene that causes transferable MRSA and the presence of toxins such as enterotoxins. The research report of the International Journal of Current Microbiology and Applied Sciences suggests that there is a relationship with the rate of detection of SEB genes in the MRSA strain [30]. In this study detected 4 isolates possessed SEB gene out of 20 MRSA isolates tested or about 20% of MRSA strains had SEB genes equal to the number reported in the Veterinary Institute Bulletin in Pulawy which detected 35% MRSA had SEB [31]. However, the amount is different from that obtained by the report of the International Journal of Current Microbiology and Applied Sciences where 75% of MRSA isolates have the SEB gene detected. SEB produced by MRSA is considered a major cause of staphylococcal toxic shock syndrome [32]. SEA and SEB enterotoxins are known to cause about 90% of staphylococcal food poisoning worldwide [33]. A research report in Uganda revealed that more than 90% of the isolates tested carried at least one enterotoxin-encoding gene that showed a high risk of MBD spread [34].

This research was carried out by PCR test to determine the presence of enterotoxin B (SEB) gene in MRSA isolates. Research conducted by Arifah, (2020) also found three positive isolates encoding the SEB gene [40], but from dog nose swab samples in Surabaya, while from raw milk the SEC gene was discovered [41]. Other researchers argue that SEC is the most common type of enterotoxin found in milk-derived samples [42]. In this study, some MRSA isolates did not encode the SEB gene, this is because isolates did not have enterotoxin genes or might have other types of enterotoxins [43].

Enterotoxins are known as superantigens because of their ability to activate polyclonal T cells. This activation causes proinflammatory cytokine production and excessive T cell proliferation, causing systemic release of proinflammatory cytokines which can cause clinical signs such as fever, hypotension, and shock. Superantigens also suppress livestock immunity and contribute to chronic intramammary infections [41]. Milk and milk products are considered as the main sources of transmission to humans so it is necessary to emphasize the existence of hygiene practices during processing, distribution, and consumption [44], so that the negative effects of milk can be avoided.

Conclusion

In this study it can be concluded that the presence of cow's milk contamination by MRSA is possible due to various factors, one of which is low milking hygiene. Moreover, the detection of SEB genes in MRSA isolates is very dangerous for public health aspects, which will increase the potential spread of Staphylococcal food poisoning that is difficult to treat.

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Table 1. Results of isolation and identification and detection of MRSA.

Sampling Location	Sampel Size	<i>S.aureus</i> Isolate	MRSA Confirmed by ORSA
Kediri (Kr)	50	20	6
Probolinggo (P)	50	30	8
Pasuruan (G)	50	26	4
Total	150	76	18

Note : All FOX-resistant isolates (Cefoxitin 30 µg) had resistance to OX (Oxacillin 30 µg).

Table 2. Results from the detection of SEB gene in MRSA isolates

Location	Sampel Number	Resistance on Disc Diffusion Test		ORSA Test	SEB Detection
		OX	FOX		
Kediri	Kr03	✓	✓	Positive	Positive
	Kr04	✓	✓	Positive	Positive
	Kr05	✓	✓	Positive	Positive
	Kr07	✓	Sensitive	Positive	Negative
	Kr13	✓	Sensitive	Positive	Negative
	Kr37	✓	✓	Positive	Negative
Probolinggo	P04	✓	✓	Positive	Negative
	P07	✓	✓	Positive	Negative
	P17	✓	✓	Positive	Negative
	P21	✓	✓	Positive	Negative
	P31	✓	✓	Positive	Negative
	P32	✓	Sensitive	Positive	Negative
	P35	✓	✓	Negative	Not tested
	P40	✓	✓	Negative	Not tested
	P45	✓	✓	Positive	Negative
P49	✓	✓	Positive	Positive	
Pasuruan	G06	✓	✓	Positive	Negative
	G16	✓	✓	Negative	Not tested
	G18	✓	Sensitive	Negative	Not tested
	G24	✓	Sensitive	Positive	Negative
	G33	✓	✓	Positive	Negative
	G37	✓	Sensitive	Positive	Negative

Note : ✓ = resistant; FOX = Cefoxitin 30 µg, ; OX = Oxacillin 30 µg (Oxoid).

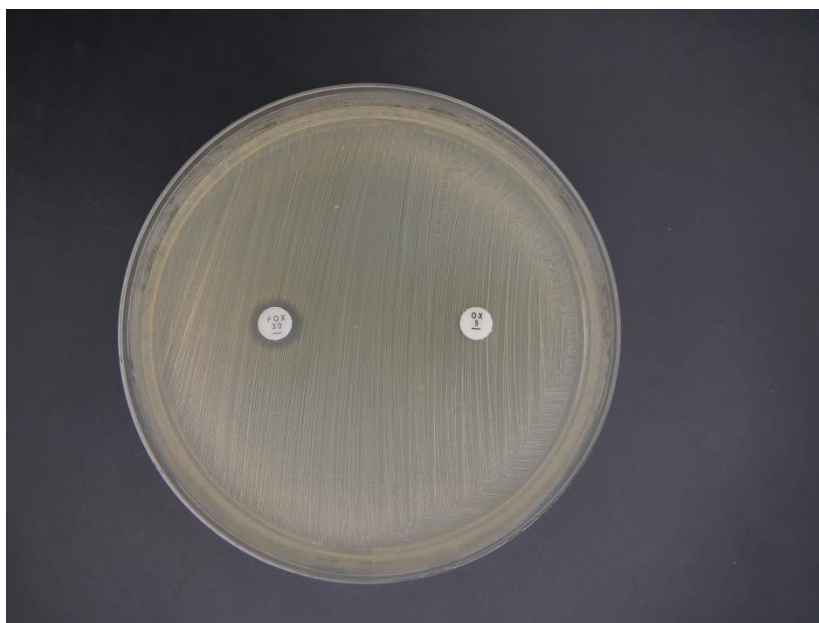


Figure-1. Detection of MRSA with oxacillin and cefoxitin disc diffusion method.



Figure-2. Confirmation of MRSA with ORSA test, the blue indicator is a positive result.

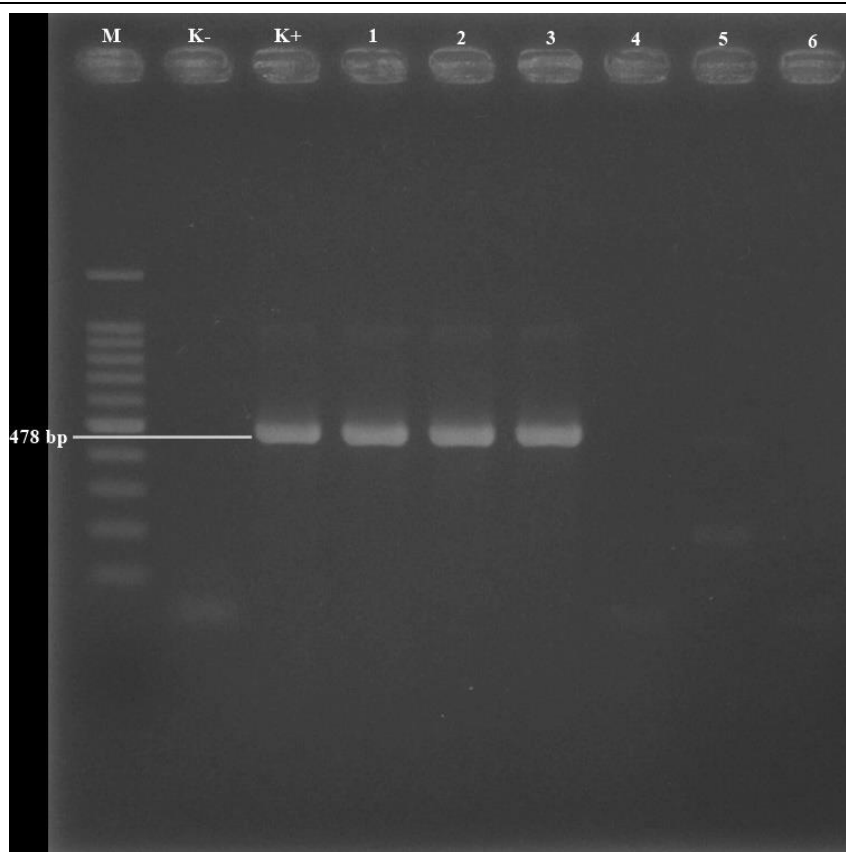


Figure-3. Results of PCR detection of SEB gene from MRSA isolates on the Kediri location. There were three SEB gene detected

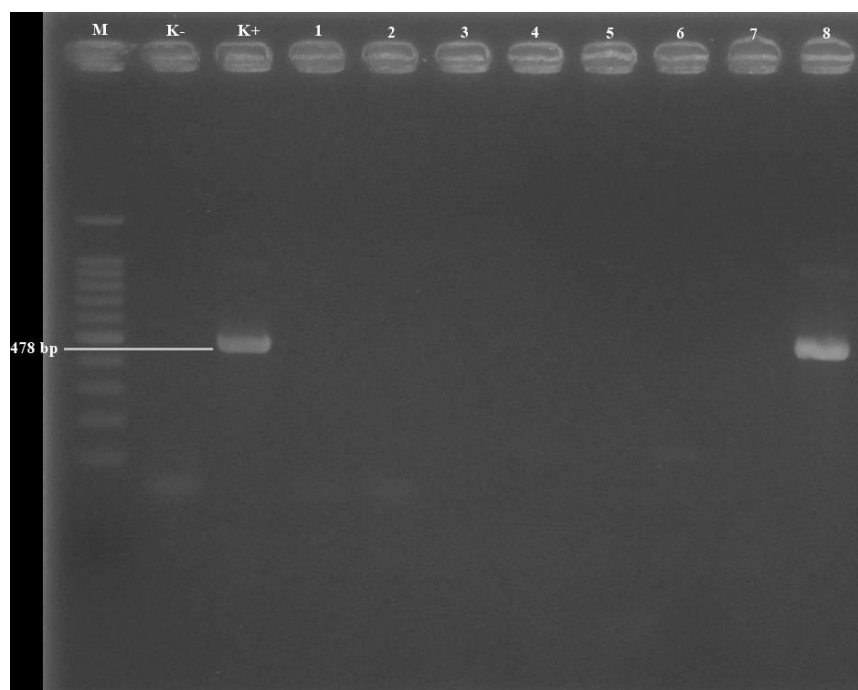


Figure-4. Results of PCR detection of SEB gene from MRSA isolates on Probolinggo location. There was one SEB gene detected

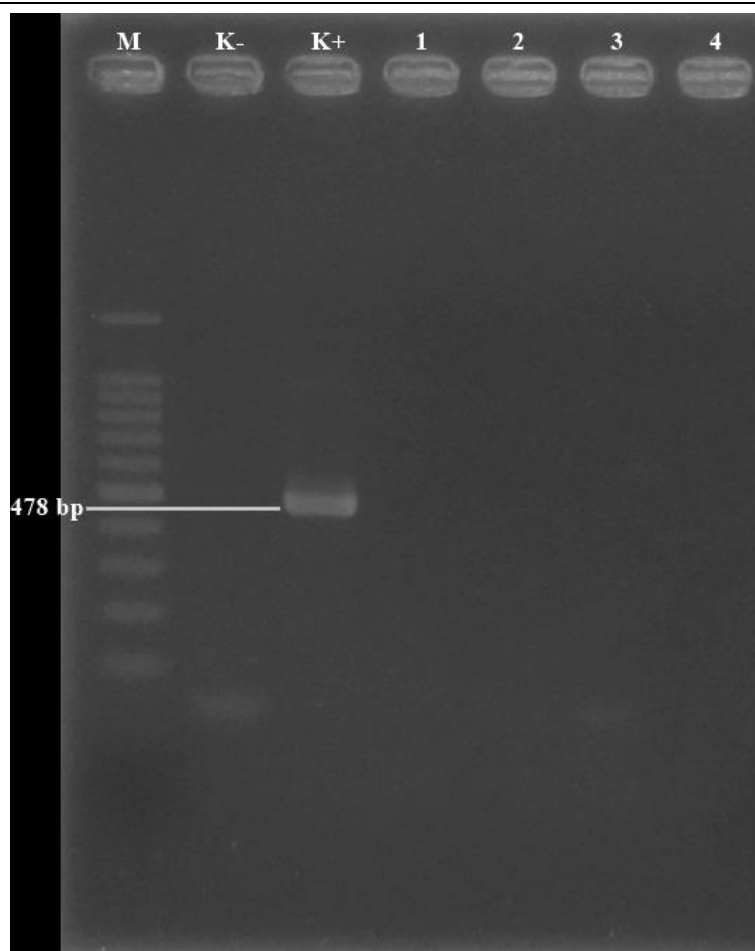


Figure-5. Results of PCR detection of SEB gene from MRSA isolates on Pasuruan location. There was no SEB gene detected.