PUBLIKASI JURNAL

The Difference in Milking Techniques Against *Salmonella* sp. Contamination in Ajung and Arjasa Districts, Jember Regency, Indonesia

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KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET DAN TEKNOLOGI
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3th International Conference on Agromedicine and Tropocal Diseases(ICATD) 12-13 September 2020 Indonesia

THE THIRD

ICATD

International Conference on AGROMEDICINE & TROPICAL DISEASES

FACULTY OF MEDICINE - UNIVERSITY OF JEMBER

INTEGRATED APPROACHES ON PREVENTION, CURATIVE AND CONTROL OF ZOONOTIC AND EMERGING DISEASES IN AGROMEDICINE FIELD

ABSTRACT BOOK

JEMBER – EAST JAVA
SEPTEMBER 12TH–13TH 2020

ACKNOWLEDGEMENTS

The Organizers ICATD 2020 express sincere appreciation and gratefull thanks to all those who have contributed their kind support to facilitate this conference.

WELCOMING ADDRESS

Dear distinguished guest and participants,

On behalf of the committee of The 3rd International Conference on Agromedicine and Tropical Diseases (ICATD) 2020, it is a privilege and my great honour to welcome you to this virtual conference. This is a biannual conference organized by Faculty of Medicine University of Jember. Due to the pandemic situation, we have to conduct this conference virtually.

The needs for the Agromedicine research for the improvement on occupational and environmental health and safety in agriculture are growing. The challenges in zoonotic and emerging diseases such as a recent covid-19 pandemic situation are also increasing that require global solution to prevention and elimination. To address the approaches in successful handling of complex challenges, the theme of this conference is kept as 'Integrated approaches on prevention, curative, and control of zoonotic and emerging diseases in Agromedicine field.

This event aims at providing a forum for presentation and discussion of the current and new research on this topic along with dissemination of relevant information among scientists, medical doctors, practitioners, researchers, and other professional from different countries. There are distinguished speakers from Ministry of Agriculture, the expert from Australia, Philippines, Sweden, as well as Indonesia. There are more than 40 researches will be presented in this conference, and approximately 200 participants from Indonesia, Malaysia, Philippines, and Argentina will join the event. And surely, this event will be an outstanding place for networking opportunities to discuss interesting ideas and develop the fruitful project in the future. As a major goal of this event, we hope that it can be an excellent chance for coordinating new partnerships which advance collaboration in the research field as well as the career of all participants.

The insight and hard work of the members both technical and organizing committees have made this event possible. Each member mad significant contribution toward the success of this conference, and we thank everybody for their valuable support. Finally, I would like to express our sincere thanks and appreciation to all participants and colleagues for their indispensable support in organizing the event.

Erma Sulistyaningsih
Chairman of the 3rd ICATD Organizing Committee

CONTENT

GENERAL INFORMATION FOR THE PARTICIPANTS

Instruction for all participants

- Registration includes:
  - The 3rd ICATD 2020 abstract e-book
  - Certificate of attendance
- The conference will be held via Zoom with the link below:
  - ***Plenary Lecture/Main Room***
    Link:
    Click here to join
    Meeting ID : 992 4533 4716
    Password : 065773
  - ***Paralel Session (Oral Presentation)***
    - **Room A**
      Link :
      Click here to join
      Meeting ID : 920 4275 5085
      Password : 185267
    - **Room B**
      Link :
      Click here to join
      Meeting ID : 941 0834 5688
      Password : 068838
- Please insert your full name on your zoom account, not alias or device name. (NAME_INSTITUTION)
- WE STRONGLY ADVISE you not to share the link and password to NON PARTICIPANTS.
- Make sure your internet access is well established.

Instruction for the Moderator

- Please ensure that the sessions and speaker presentations are kept strictly on time.

Instruction for Speakers (Keynote Speaker and Oral Presenter)

- 45 minutes have been allocated for each keynote speakers, including for answering the questions.
- Speakers for oral presentations were given 10 minutes including answering questions.
- Please be aware that the above times must be strictly adhered to.
- Oral presentations will be assessed and selected for best 1,2 and 3.

Instruction for Poster Presenter

- Posters will not be presented. They only will be displayed by the officer after plenary session in the plenary room before lunch break.
- Posters will be assessed and selected for the best 1,2 and 3.

The 3rd ICATD COMMITTEE

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TIMETABLE

Time (GMT+7)	Activity	Annotation
Day 1: 12 September 2020		
08.00-08.30 am	**Registration Day 1**	**Committee**
08.30-09.00 am	**Opening Ceremony** display: **"Indonesia Raya"** **"Hymne UNEJ"**	**Committee**
	Welcome Speech 1. Chairman of 3rd ICATD 2. Rector of Jember University	1. Dr. rer. Biol. Hum. dr. Erma S, M.Si 2. Dr. Ir. Iwan Taruna, M.Eng
09.00-10.00 am	***Keynote Speech*** Head of Balai Besar Penelitian Veteriner, Bogor-Indonesia *Dr. Drh. NLP. Indi Dharmayanti, M.Si.*	***MC:*** dr. Dwita Aryadina Rachmawati, M.Kes
10.00-12.00 am	***Plenary Lecture I*** *1. dr. Supangat, M.Kes., Ph.D., Sp.BA* *2. Prof. Susan Alison Brumby, Ph.D.* *3. Discussion*	**Moderator:** dr. Laksmi Indreswari, Sp.B
12.00-12.30 am	***Poster Slide Show***	**Committee**
12.30-13.00 am	***LUNCH BREAK***	**Committee**
13.00-14.30 am	***Paralel session (Class A and Class B)*** ***Oral Presentation I***	**Moderator**: dr. Pulong Wijang Pralampita, Ph.D. dr. Elvia Rahmi Marga Putri
Day 2: 13 September 2020		
08.30-09.00 am	**Registration Day 2**	**Committee**
09.00-12.00 am	***Plenary Lecture II*** *1. Prof. Dr. drh. Wayan Tunas Artama* *2. Fatima May R. Tesoro, RPh, MSPharm* *3. Prof. Peter Lundqvist, Ph.D.* *4. Discussion*	**Moderator**: dr. Inke Kusumastuti, M.Biomed., Sp.KJ
12.00-12.30 am	**Poster Slide Show** **Closing Ceremony**	**Committee**
12.30-13.00 am	***LUNCH BREAK***	**Committee**
13.00-14.30 am	***Paralel session (Break Out Room)*** ***Oral Presentation II***	**Moderator**: dr. Pulong Wijang Pralampita, Ph.D. dr. Elvia Rahmi Marga Putri
15.00-15.30 am	***Best Poster &*** ***Oral Presentation Announcement*** ***CLOSING CEREMONY***	**Chairman of 3rd ICATD**

SCIENTIFIC PROGRAM

ORAL PRESENTATION

DAY 1 : 12 September 2020 (13.00 – 14.30 WIB)

ROOM A

No	Author's Name	Institution	Tittle
1	Muhammad Reza Febriliant, Niniek Budiarti	Saiful Anwar General Hospital, Brawijaya University	Duration Differences of The Denial-Acceptance of The Kübler-Ross Cycle After Diagnosed HIV Based on Gender
2	Sugeng Mashudi, Sri Susanti, Sulistyo Andarmoyo, Elok Yulidaningsih, Yuzana binti Mohd Yusop	Malang Health Polytechnic, Trenggalek Campus	Coping Behaviors for Support Among Family During The Covid-19 Pandemic
3	Ancah Caesarina Novi Marchianti, Dwita Aryadina Rachmawati, Ida Srisurani Wiji Astuti, Angga Mardro Raharjo, Rony Prasetyo	University of Jember	Determinants of Stunting and Undernutrition in Children in The Agricultural Area of Jember Regency, Indonesia
4	Pujiati, Erlia Narulita, N. Nurhayati	University of Jember	Development of Healthy Food and Packaging from Bacterial Secondary Metabolites *Acetobacter xylinum*
5	Awalya Rahma Putri, Dina Helianti, Nindya Shinta Rumastika	University of Jember	Gastroprotective Effect Of Onion Peel (*Allium cepa L. var Ascalonium*) Extract On Wistar Rats Induced By Mefenamic Acid
6	Virgilio Y. Tan Ii	Riverside College, Inc., Bacolod City, Philippines	Microcrystalline Cellulose Derived From Rice (*Oryza sativa* L.) Straw Waste As Binder for Tablet Formulations
7	Wiwien S. Utami, Elsa H. Murhandarwati, Wayan T. Artama, Hari Kusnanto	University of Jember	Spatial Analysis of Cryptosporidiosis in Livestock Community in Mlati District, Sleman, Yogyakarta

ROOM B

No	Name	Institution	Tittle
1	Zainabur Rahmah, Doby Indrawan	Maulana Malik Ibrahim Islamic Public University	Mimba Leaf Therapy Causes High Level of TGF-ß Expression and Low Expression of TNF-α in The Spleen of Mencit in Infection of *Plasmodium berghei*
2	Aurora Urbahillah, Jay Jayus, N. Nurhayati	University of Jember	Improving The Quality of *Kombucha cascara* as Functional Beverage
3	Ariyani Noviantari, Khariri	Center for Research and Development of Biomedical and Basic Health	Cell Culture as The Most Certain Way of Diagnosis In Rabies Infection

		Technology	
4	Bhisma Satya Dharma, Isa Ma'rufi, Dewi Rokhmah	University of Jember	Dengue Fever Risk Mapping Area Based on Behaviour Prevention on Four Sub Districts in Jember District
5	Eka Noneng Nawangsih, Lia Siti Halimah, Euis Reni Yuslianti	University of Jember	Develoment of a Novel Diagnostic Kit Candidate To Detect Dengue Antibody, Using Co-Agglutination Method, Utilizing Protein a Positive *Staphylococcus aureus* As a Carrier
6	Khariri, Lisa Andriani Lienggonegoro	Center for Research and Development of Biomedical and Basic Health Technology	The Threat of Zoonotic Infections That Lurk From The Culture of Consumption of Wild Animal Meat
7	Putri Reno Intan, Khariri, Zainal Khoirudin	Center for Research and Development of Biomedical and Basic Health Technology	Distribution of Rabies That Infect Humans In Indonesia During One Last Decade
8	Nanda Eka Sri Sejati, Elvia Rahmi Marga Putri	dr. Soebandi Regional General Hospital, Jember	In Silico Molecular Docking Study on Substances From *Psidium guajava* Against Dengue Protease NS2B/NS3

DAY 2 : 13 SEPTEMBER 2020 (13.00 – 14.30 WIB)
ROOM A

No	Name	Institution	Tittle
1	Syubbanul Wathon, Yasir Mubarok, Rike Oktarianti, Kartika Senjarini	University of Jember	In Vitro Analysis of Human Humoral Immune Response Against 31 Kda Immunogenic Protein Fraction from Salivary Gland of *Aedes albopictus*
2	Vincent Susanto, Anna Rozaliyani, Diah Handayani, Erlina Burhan, Harmi Rosianawati, Mulyati Tugiran, Ridhawaty Syam, Findra Setianingrum, Robiatul Adawiyah	University of Indonesia	Species Distribution of Fungal Isolated from Sputum of Previous Tb Patients and Its Susceptibility towards Itraconazole
3	Aris Purwantoro, Wayan Tunas Artama, Bambang Sumiarto, Adi Heru Husodo, Nabila Cahyarani, Riandanu Dharmawan, Elkautsar Rizqi Ramadhanti	Gadjah Mada University	Toxoplasmosis Molecular Detection of Goat Meats from Satay Kiosks at Kulon Progo Regency, Indonesia
4	Suyatmi, Indriaswari Kirana Suri,Tri Agusti Solikhah, Reza Novierta Pesik	Sebelas Maret University	Comparative Study on Anticancer Activity of Compound Extracted From *Caesalpinnia sappan* on Breast Cancer Cell Line (MCF-7)

5	Riza Indira Fadillah Zam Zam, Erma Sulistyaningsih, Ancah Caesarina Novi Marchianti	University of Jember	The Bacteria and Parasite Patterns In Flies Do Not Associate with The Prevalence of Fly Vector-Borne Diseases at The Dairy Farm
6	Tri Yudani Mardining Raras, Intan Rakhma Kinanti	Brawijaya University	The Repression Effect of Cell Free Supernatant of *Lactobaccilus helveticus* C2 on Biofilm-Related Genes of Mdr Klebsiella Pneumoniae
7	Sheilla Rachmania, Erma Sulistyaningsih, Anak Agung Istri Ratnadewi	University of Jember	The DBL2B-PFEMP1 Recombinant Protein of Indonesian *Plasmodium falciparum* Induces Specific Polyclonal Immunoglobulin-G In Wistar Rats
8	Rike Oktarianti, Rochmatul Nuryu Khasanah, Syubbanul Wathon, Kartika Senjarini	University of Jember	Immunogenic Protein of Salivary Gland from *Aedes albopictus*

ROOM B

No	Name	Institution	Tittle
1	Bagus Hermansyah, Yunita Armiyanti, Yudha Nurdian	University of Jember	Profile of Immune Response Against Infection Hookworm in Plantation Workers in Jember
2	Ni Ketut Yuliana Sari, Heny Arwati, Indah Setyawati Tantular	Airlangga University	Antimalarial Activity of Mahagony Seed Ethanolic Extract in Balb/C Mice Infected With Plasmodium Berghei Anka and The Corelation of Parasitemia and Plasma Level of IFN- γ
3	Fauzul Muna, Khariri, Ambar Retnowati, Yuswandi	Center for Research and Development of Biomedical and Basic Health Technology	Detection of Brucellosis in Imported Dairy Cattle During Animal Quarantine Process to Prevent Disease Transmission to Humans
4	Nugraha Wahyu Cahyana	University of Jember	Fungal Keratitis with Corneal Ulcer in Farmer
5	Marshal Achmad Wachdin, Anna Rozaliyani, Jamal Zaini Abul A'la Al Maududi, Mulyati Tugiran, Ridhawaty Syam, Findra Setianingrum, Robiatul Adawiyah	University of Indonesia	Species Distribution of Fungal Isolated From Lung Cancer Patients and Its Susceptibility to Itraconazole in Persahabatan Hospital
6	Evi Umayah Ulfa, Elly Munadziroh, Hermansyah, Ni Nyoman Tri Puspaningsih	University of Jember	Expression of Secretory Leukocyte Protease Inhibitor in *Saccharomyces cereviciae* BJ1824
7	Isnaini, Ika K. Oktaviyanti, Lia Y.	Lambung Mangkurat	Antibacterial and Wound Healing Activity of Extract Ethanolic Flowers of

	Budiarti	University	*Melastoma malabathricum* L
8	Solikha Solikha, Jay Jayus, Nurhayati Nurhayati	University of Jember	Healthy Modulation of Microflora Using Activated Biochar

POSTER

12-13 September 2020 (12.00 – 12.30 WIB)

No	Name	Institution	Tittle
1	Iif H. Nurrosyidah, Isnaeni, Ni M. Mertaniasih	University of Jember	Antibacterial Activity of Cell Free Fermentation Supernatant of Red Passion Fruit Pulp (*Passiflora Edulis Sims.*) Againts *Escherichia coli* Extended Spectrum Beta Lactamase (*E.Coli* Esbl) and Methicillin Resistant *Staphylococcus aureus* (MRSA)
2.	Muhammad Ihwan Narwanto, Masruroh Rahayu, Setyawati Soeharto, Nurdiana, Mochammad Aris Widodo	University of Jember, Brawijaya University	*Tamarindus indica* Seed Extract for Preventing Memory Impairment in Rat Model of Alzheimer's Disease
3.	Ratna Indriawati, Adnal Khemal Pasha	Yogyakarta Muhammadiyah University	Hypoglicemic and Hypolipidemic Capacity of Java Cherry Steeping (*Muntingia calabura* L.) on Diabetic Rats
4.	Enny Suswati, Vera Asmita Fitriani, Edy Junaidi	University of Jember	The Difference in Milking Techniques Against *Salmonella Sp.* Contamination In Ajung And Arjasa Districts, Jember Regency, Indonesia
5.	Sayu Putu Yuni Paryati, Shiffa Ramadhanti, Khomaini Hasan	Universitas Jenderal Achmad Yani	Vaccination with Anti-Idiotype Antibody and Nano-Chitosan Adjuvant Against Antibody Rabies Titer in Rats
6.	Kristanti Parisihni, Vania Dealaura Christania, Yulie Emilda Akwan, Yoifah Rizka Wedarti	University of Jember	Antimicrobial Potency of Squid Ink Hexane Extract to Periodontal Bacteria *Fusobacterium nucleatum* Biofilm
7.	Dini Agustina, Bima Setia Sandya Nugraha, M. Ali Shodikin, Diana Chusna Mufida, Enny Suswati, Bagus Hermansyah	University of Jember	Role of Outer Membrane Protein (OMP) 32 kDa *Klebsiella pneumoniae* as a Hemaglutinin Protein and Adhesin
8.	Ibnu Mubarok, Astika Shiella Nabila Putri, Clarrisa Ayu Candra Kirana, Kristanti Wahyuningtiyas, Mury Ririanty, Nabila Zandra Kartika, and Rofiah Adawiyah Wisudawati Ning Tias	University of Jember	Orange Peel and Sugar Java as An Alternative to Natural Disinfectant in Covid-19 Prevention Efforts in The Tobacco Farming Area, Coastal Area, Jember District

9.	Yunita Armiyanti, Anzil Aziza, Ika Rahmawati Sutejo	University of Jember	In Vitro Ovicidal Activity of Combination Illicium Verum Extract And Coconut Oil Against *Pediculus humanus capitis*
10	Elly Nurus Sakinah, Aris Prasetyo, Jauhar Firdaus	University of Jember	Analysis of Short Chain Fatty Acid (SCFA) After Consumption of Young Coconut in Healthy Humans
11	Rena Normasari, Muhammad Iqbal Fauzi, Ayu Munawaroh Aziz	University of Jember	Extract of *Tamarindus indica* Seed Effect on Testicular Damage in Aluminium Chloride ($AlCl_3$) Induced Rat
12	Faika Rachmawati, Khariri	Jember Pharmacy Academy	The Approach of One Health Concept In Addressing The Spread of Zoonotic Diseases In Indonesia
13	Harwanto, Heru Susetya, Khrisdiana Putri, Elfa Zuraida, Widodo Pujiatmoko[4]	Universitas Gadjah Mada	The Protectiveness of Dogs and Cats Post Rabies Vaccination in Banjarbaru, Indonesia

THE DIFFERENCE IN MILKING TECHNIQUES AGAINST *Salmonella Sp.* CONTAMINATION IN AJUNG AND ARJASA DISTRICTS, JEMBER REGENCY, INDONESIA

Enny Suswati[1], Vera Asmita Fitriani[2], Edy Junaidi[3]

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Abstract

Fresh cow's milk is a liquid obtained from the milking process of healthy cow udders without being added or reduced by any substance. The nutrient content with a pH of about 6.8 in milk causes microorganisms to grow easily in milk. Pollution of milk by microorganisms can occur during the milking process to pre-processing activities. Pathogenic bacteria that often contaminate milk were *Staphylococcus aureus*, Escherichia coli, and Salmonella sp. which can cause foodborne diseases. Salmonella sp. most commonly causes foodborne disease through milk resulting in symptoms of salmonellosis. Contamination in milk can be reduced by using a milking machine during the milking process. The use of milking machines can reduce the total number of bacteria and improve the quality of milk. The purpose of this study was to determine the differences in Salmonella sp. Bacterial contamination. in cow's milk from simple and modern milking techniques in Ajung and Arjasa Subdistricts, Jember Regency. This type of research is observational analytic with a total sample of 32.. Calculation of total bacteria was carried out by the Total Plate Count method while Salmonella sp. contamination known by planting samples on Salmonella Shigella Agar media. Data analysis used fisher exact test. The results of the study found Salmonella sp. contamination on simple milking techniques of 37.5% and modern techniques 81.2%. The conclusion of this study found significant differences in Salmonella sp. contamination in cow's milk from simple and modern milking techniques.

Keywords: contamination, *Salmonella* sp., milking techniques

THE 3rd ICATD
International Conference on AGROMEDICINE & TROPICAL DISEASES
FACULTY OF MEDICINE - UNIVERSITY OF JEMBER

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Certificate

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Dr. dr. Enny Suswati, MKes

As

Poster Presenter

in Virtual Conference

The 3rd International Conference on Agromedicine & Tropical Diseases :
Integrated Approaches on Prevention, Curative and Control of Zoonotic and Emerging Diseases in Agromedicine Field

Hosted by Faculty of Medicine, University of Jember on September 12th - 13th 2020

dr. Supangat, M.Kes, Ph.D., Sp.BA
Dean of Faculty of Medicine, University of Jember

Dr. rer.biol.hum. dr. Erma Sulistyaningsih, M.Si
Chairman of ICATD Committee

The Difference in Milking Techniques Against *Salmonella sp.* Contamination in Ajung and Arjasa Districts, Jember Regency, Indonesia

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Abstract

Fresh cow's milk is a liquid obtained from the milking process of healthy cow udders without being added or reduced by any substance. The nutrient content with a pH of about 6.8 in milk causes microorganisms to grow easily in milk. Pollution of milk by microorganisms can occur during the milking process to pre-processing activities. Pathogenic bacteria that often contaminate milk were *Staphylococcus aureus*, *Escherichia coli*, and *Salmonella sp*. which can cause foodborne diseases. *Salmonella sp*. most commonly causes foodborne disease through milk resulting in symptoms of salmonellosis. Contamination in milk can be reduced by using a milking machine during the milking process. The use of milking machines can reduce the total number of bacteria and improve the quality of milk. The purpose of this study was to determine the differences in Salmonella sp. Bacterial contamination. in cow's milk from simple and modern milking techniques in Ajung and Arjasa Subdistricts, Jember Regency. This type of research is observational analytic with a total sample of 32. Calculation of total bacteria was carried out by the Total Plate Count method while *Salmonella sp.* contamination known by planting samples on Salmonella Shigella Agar media. Data analysis used fisher exact test. The results of the study found *Salmonella sp.* contamination on simple milking techniques of 37.5% and modern techniques 81.2%. The conclusion of this study found significant differences in *Salmonella sp.* contamination in cow's milk from simple and modern milking techniques.

Keywords: contamination, *Salmonella sp., milking techniques*

Introduction

Milk contamination by microorganisms can occur during the milking, handling, storage and pre-processing activities(1). There are two groups of bacteria that often contaminate milk, namely pathogenic bacteria and non-pathogenic bacteria. Examples of pathogenic bacteria include: *Staphylococcus aureus, E. coli,* and *Salmonella sp*. Meanwhile, non-pathogenic bacteria include *Micrococcus sp*., *Pseudomonas sp*., and *Bacillus sp.* (2). One of the most common pathogenic bacteria causing foodborne disease through milk is *Salmonella sp.* (3). The aim of this study was to evaluate the microbiological quality of raw milk related milking techniques and its contamination with Salmonella sp. in order to determine the infectious risks associated to its consumption.

Methods

The research was an observational analytic study to determine the differences in bacterial contamination of Salmonella sp. on cow's milk from traditional and modern milking techniques in Ajung and Arjasa Districts, Jember. This research was conducted at the Microbiology Laboratory of the Faculty of Medicine University of Jember in November 2018 to January 2019. Population in this study were all fresh cow's milk obtained from all farms in Ajung and Arjasa Districts, Jember. The research procedures were (1) the preparation stage which included sterilization of the tools and making media, (2) testing for mastitis using the white side test, (3) breeding and calculating the total bacteria. The testing phase includes planting the sample in SSA media and Gram staining. Data obtained from the research results are presented in the form of distribution tables and described. To determine the relationship between the two variables studied, an analysis was carried out with the SPPS version 23 using fisher exact test with a 95% confidence interval.

Results

Table 1. The results of the calculation of the average TPC

Milking Technique	Average of Total Bacteria
Traditional	2,7 x 10^4 CFU/mL
Modern	> 1x10^6 CFU/mL

Table 2. Results of inoculation of *Salmonella sp.* on SSA media

Milking Techniques	Positive of *Salmonella* sp.	Negative of *Salmonella* sp.
Traditional	6 samples	10 samples
Modern	13 samples	3 samples

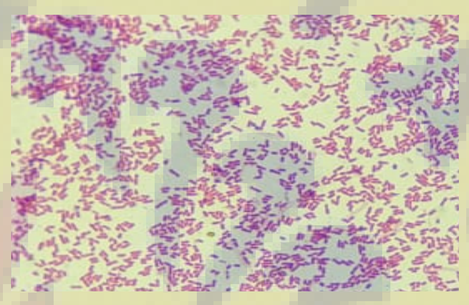

Figure 1. The results of Gram staining for *Salmonella sp.* at 1000x magnification

Table 3. Results of inoculation *of Salmonella sp.* on SSA media

Factors	Contamination of *Salmonella sp.*		P	*Odd ratio*
	Positive n (%)	Negative n (%)		
Traditional technique	6 (37,5 %)	10 (62,5%)	0.015	7,2
Modern technique	13 (81,2 %)	3 (18,8%)		
Total n (%)	19 (59,4%)	13 (40,6%)		

Discussion

In the traditional milking technique, the total bacterial contamination was 2.7x10^4 CF /ml and in modern milking techniques, the total bacterial contamination was more than 1x10^6 CFU/ml. From the total bacteria that contaminated cow's milk, it was found that differences in the contamination of *Salmonella sp.* on traditional cow milking techniques and modern cow milking techniques. In a traditional milking technique, *Salmonella sp.* amounted to 37.5%, whereas in modern milking, *Salmonella sp.* which was higher at 81.2%. There are differences in the level of fresh milk contamination on the two farms related to the hygiene aspects applied. Contamination of fresh milk can be reduced by maintaining milk hygiene, personal hygiene and livestock health (4,5).

However, the results that have been obtained are not in accordance with the existing theory. Because the milking machine will reduce the total number of bacteria, maintain udder health, and improve milk quality (6–8). The unsuitable condition of the milking equipment and its storage area is the cause of the growth of pathogenic bacteria including *Salmonella sp.* (9) Contamination in cow's milk often comes from the milker because the milker does not pay attention to the cleanliness of his hands. However, the implementation of good sanitation in the environment around the cage and good hygiene on hands by always washing hands before milking, after milking, and always washing hands on each cow that is going to be milked can reduce and minimize bacterial contamination in cow's milk. However, the presence of bacterial contamination in the hand milking technique can be caused by the milking hand which is not completely sterile (10).

Conclusion

The conclusion of this study is that there is a significant difference between the traditional milking technique and the modern milking technique carried out on the contamination of *Salmonella sp.* bacteria in fresh cow's milk.

References

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