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Identification and characterization of bacteriocin producing bacteria capable of inhibiting bovine mastitis pathogens

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Abstract

Mastitis most prevalent disease specially sub clinical mastitis which have economic loss ,decrease milk production and increase antibiotic resistant, so we use probiotic in treatment of mastitis instead of antibiotic to treatment of mastitis pathogen .Isolation of *Lactobacillus* spp. from milk *L.pentosus* ,*L.plantarum* isolated from ewe milk ,*L.acidophilus* and *L.salivarius* from cow ,*L.fermentum* ,*L.helveticus* from buffaloes and *L.bulgaricus* ,*L.brevis* from goat then measurement of molecular weight of bacteriocin by SDS – PAGE isolated from bovine and ovine milk. Bacteriocin are highly specific antibacterial proteins which are produced by strains of *Lactobacillus* spp. and showed broad range of antibacterial activity against some mastitis pathogens (*S. aureus*, *E. coli*, *Y. enterocolitica*, *S. uberis* and *S. xylosus*). High thermal stability (up to 100°C) and was active over wide range of pH (3 to 10) by agar diffusion method.

Key words: Bacteriocin ,*Lactobacillus* ,mastitis pathogen ,SDS-PAGE

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CONTENTS

CONTENTS	Page
INTRODUCTION.....	1
Aim of the study.....	4
REVIEW OF LITERATURE.....	5
2.1. Bacterial pathogens associated with mastitis.....	5
2.2. Benefits of probiotic.....	13
2.3. <i>Lactobacillus</i> species and their antimicrobial effect.....	21
2.4. SDS (Sodium dodycyl sulfate).....	29
2.5. Characterization of <i>Lactobacillus</i>	31
MATERIAL & METHODS.....	36
3.1. Materials.....	36
3.1.1. Milk samples	36
3.1.2. Media	36
3.1..3. Reagents and solutions.....	38
3.1..4. Stains.....	39
3.1..5. Plasma from rabbits for coagulase .test.....	39
3.1.6 Materials for California Mastitis Test (CMT).....	39
3.1.7 Material used for somatic cell count.....	39
3.1.8 Material used for chromatography.....	39
3.1.9Material used for diffusion method.....	40
3.1.10 Material used for SDS-PAGE	40
3.1.11. Material used for characterization of bacteriocin	42
31.12 Apparatus and equipment	42

CONTENTS	Page
3.2Methods.....	43
3.2.1 Clinical examination of animals	43
3.2.2. Collection of milk samples.....	43
3.2.3. California mastitis test.....	44
3.2.4. SCC by means of Bently Soma count 150.....	44
3.2.5 Preparation and cultivation of milk samples for bacteriological examination .	45
3.2.6 Isolation and identification of <i>lactobacillus</i>	45
3.2.7.1 Isolation and identification of staphylococci	46
3.2.8.Isolation and identification of streptococci.....	48
3.2.9. Isolation and identification of <i>E. coli</i>	49
3.2.10.Production of Bacteriocin.....	50
3.2.11.Purification of Bacteriocin.....	50
3.2.12.Sodium dodecyl sulfate – Poly Acrylamid Gel Electrophoresis (SDS-PAGE),	51
3.2.13 Diffusion method.....	52
3.2.14.Characterization of bacteriocin.....	52
RESULTS.....	54
DISCUSSION.....	92
SUMMARY.....	108
REFERENCES.....	112
ARABIC SUMMARY.....	٢٠١

List of Tables

Tables	Tables Title	Pages
1	Occurrence of subclinical mastitis among the examined species.	54
2	Correlation between CMT and somatic cell count (SCC) among the examined cow milk samples.	56
3	Correlation between CMT and somatic cell count (SCC) among the examined buffalo milk samples.	57
4	Correlation between CMT and somatic cell count (SCC) among the examined sheep milk samples.	58
5	Correlation between CMT and somatic cell count (SCC) among the examined goat milk samples.	59
6	Bacteria recovered from the examined cow milk samples.	64
7	Bacteria recovered from the examined buffalo's milk samples.	65
8	Bacteria recovered from the examined goat milk samples.	66
9	Bacteria recovered from the examined ewe milk.	67
10	Bacteria recovered from examined cow milk tank samples.	68

Tables	Tables Title	Pages
11	Incidence of bacteriocin production among <i>Lactobacillus</i> spp. isolated from cow milk samples.	71
12	Incidence of bacteriocin production among <i>Lactobacillus</i> spp. isolated from buffalo milk samples.	71
13	Incidence of bacteriocin production among <i>Lactobacillus</i> spp. isolated from ewe milk samples.	72
14	Incidence of bacteriocin production among <i>Lactobacillus</i> spp. isolated from goat milk samples.	72
15	Incidence of bacteriocin production among <i>Lactobacillus</i> spp. isolated from cow milk tank samples.	73
16	Anti bacterial effect of bacteriocin against some bacterial pathogens .	76
17	Effect of pH and temperature on bacteriocin of buffaloes isolates.	85
18	Effect of pH and temperature on bacteriocin of ewe isolates.	86
19	Effect of pH and temperature on bacteriocin of goat isolates.	87
20	Effect of pH and temperature on bacteriocin of cow isolates.	88

List of Figures

Figures	Figures Title	Pages
1	<i>E. coli</i> colonies on MacConkey medium	61
2	<i>S. aureus</i> colonies on mannitol salt agar	61
3	Tube coagulase test of <i>Staphylococcus</i> spp.	61
4	Large white colony of <i>L. brevis</i> on MRS medium	62
5	Medium size white colony of <i>L. acidophilus</i> on MRS medium	62
6	<i>L. delberuckii</i> subsp. <i>bulgaricus</i>	63
7	<i>L. brevis</i>	63
8	<i>L. casei</i> subsp. <i>paracasei</i>	63
9	<i>L. pentosus</i>	63
10	<i>L. salivarius</i> (curved bacilli)	63
11	<i>L. rhamnosus</i>	63
12	SDS-PAGE gel showing bands of <i>Lactobacillus</i> isolates bacteriocin	74
13	Bacteriocins of <i>L. salivarius</i> and <i>L. pentosus</i> showed clear zone against <i>S. xylosus</i> , while bacteriocin of <i>L. acidophilus</i> (no 5) showed no growth.	78
14	Different bacteriocins of <i>L. acidophilus</i> against <i>S. aureus</i> at pH 7 and 25° C.	78
15	Bacteriocin of <i>L. fermentum</i> against <i>S. aureus</i> at 25 °C and 100° C.	84
16	Bacteriocins of <i>L. salivarius</i> , <i>L. acidophilus</i> and <i>L. pentosus</i> against <i>S. aureus</i> at 40°C and pH3 in the right dish and at pH 10 in the left one.	84

1- INTRODUCTION

Mastitis is one of the most prevalent and economically significant diseases in dairy herds' worldwide that reduced milk production, discarded milk, replacement cost, extra labor, treatment by extra using of antibiotic and veterinary services. In the history, milk played a major role as nutritional source and since 1900's the start of golden era of industrial microbiology. It was also economically significant because larger quantity of milk was being processed daily in factories for the fermented food products (**Singh and Sharma, 2009**).

A probiotic is defined classically as a viable microbial dietary supplement that beneficially affects the host through its effects in the intestinal tract. This definition, however, was initially intended for use with animal feed products. For human nutrition, the following definition has been proposed: Probiotics are viable microorganisms that are beneficial to the host when administered in appropriate quantities (**FAO/WHO, 2002**).

The relationship between certain food and health benefits has been investigated for many years. In recent years, there have been a lot of active researches in the field of probiotic, due to the growing commercial interest in the probiotic food. The research work has also resulted in the understanding and ability to characterize specific probiotic organisms and their health benefits (**Stanton *et al.*, 2001**).

Probiotic microorganisms are often incorporated in food in the form of milk, yoghurt and yoghurt type fermented food. Recently, there are probiotic ice cream, cheese, infant formulas, breakfast cereals, sausages, luncheon meats, chocolate and puddings. Non-