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COMBINE EFFECT OF LACTOBACILLUS AND PROPIONIB ACTERIAL AGAINST SALMONELLA SPECIES

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ABSTRACT

The first goal of the livestock production is too delivered safe foods for human consumption taking into account the welfare of the animal and respect for the environment. It is well known that pathogens, such as Salmonella can be transmitted along the food chain and can become the various sources of human illness. The present investigation was to determine the prevalence and identify the different Salmonella species and also Isolate and identify the Lactobacillus and propionibacteria species of dairy food products this two bacteria help to identify the inhibiting factors of Salmonella by using Individually and combinelly.

Keywords : Lactobacillus, Propionibacteria, Propiotics Salmonella.

INTRODUCTION

In spite of overwhelming information about lactic acid bacteria (LAB)[(1)] called *Lactobacillus* and *Propionibacteria* .*S* it is used for the production of fermented food products, in which they contribute to the improvement and quality of flavour, texture and shelf-life. They also help in keeping the microbial quality by producing antimicrobial substances such as organic acids, diacetyl compounds, hydrogen peroxide and bacteriocins in dairy products. LAB are widespread in nature and commonly found in many food products, as well as in genital, intestinal and oral cavity of animal and human beings.

MATERIAL AND METHODS

Isolation and Identification of *lactobacilli* and *Propionibacteria*

The Isolation and Identification of *lactobacilli* and *Propionibacteria has* been made by standard methods. They are isolated from various sources (viz. vegetables, fermented food, dairy products and naturally fermented yogurt etc) using the selective agar medium. (Himedia, Mumbai), for *Lactobacillus* MRS agar (deMan, Rogosa and Sharpe), for *Propionibacteria* used *Propionibacteria* isolation agar base. After inoculating these sources on their selective media, kept for incubation. After incubation we saw the growth of specific bacteria. To confirm it we perform the Biochemical Test.

In Biochemical test and by comparing the morphology characteristics according to Bergey's Manual (9th edition) we found that the specific bacteria is *Lactobacillus* and *Propionibacteria*. Now this growth is again inoculated in nutrient broth so that multiple cells should get it and this broth is kept for incubation for 37^0C at 24 hours. After incubation, this Bacterial cells were removed by centrifuging the culture at 5000 RPM for 20 min the pH valves of supernatants were adjusted to pH 6.5 – 7.0 by the addition of 1 N NaOH the supernatants were membrane filtered and stored at 4^0C.

Now Muller-Hinton Agar plates were prepared on this plate a lawn culture of these 8 strains of *Salmonella* species. After hardening of the agar, wells (dw= 6mm) are prepared and fill with 60µl broth culture of *lactobacilli* and *Propionibacteria* by micropipette in the separate wells of the plates. Then the plates were incubated at 37^0C for 24 to 48 hrs. This method is known as an Agar Well Diffusion method.(2) and the zone of inhibition measured in diameter (mm). To study the antimicrobial activity of *Lactobacillus* and *Propionibacteria* against *Salmonella* species for individual effect of all *Lactobacillus* and *Propionibacteria* studies is conducted.(3)

Then again repeat same procedure and protocol for the study of combining effect of *Lactobacillus* and *Propionibacteria against* same resistant strains of *Salmonella* species, in addition of those strains, which are, shows resistant against individual strains of *Lactobacillus* and *Propionibacteria species.*

The study of individual and combined effect of both bacteria against *Salmonella* species is done by monitoring the 3 plates of parallel measurements of the inhibition zones in mm are reported.

RESULT

According to the Bergey's manual I found that the Morphology and Biochemical test of *Lactobacillus* and *Propionibacteria* shows in the given table.

Biochemical Test of *Lactobacillus* and *Propionibacteria* Species.

S.No.	Tests/Medium	Result
1	Gram Staining	+ve
2	Motility	-ve
3	Indole	-ve
4	Methyl Red	-ve
5	Vogues-Proskour	-ve
6	Simmons Citrate	-ve
7	Glucose	a +ve, g -ve
8	Lactose	a +ve,g -ve
9	Sucrose	a +ve,g -ve
10	Arabinose	g -ve,a +ve
11	H2 S Production	g -ve,a +ve
12	Catalase	g -ve,a +ve

a-acid g-gas

EFFECT OF *LACTOBACILLUS* AND *PROPIONIBACTERIA* AGAINST *SALMONELLA* SPECIES:

Individual Effect of *Lactobacillus* And *Propionibacteria* Against *Salmonella* Species.

In Research work the other method is applied were *Lactobacillus* and *Propionibacteria* were used individually against 8 strains of giving *Salmonella* species.

The result of individual effect of *Lactobacillus* and *Propionibacteria* against *Salmonella* species under static condition at 37^0C shows that the number of living cells of *Salmonella* species were not notably affected upto the mark.

Combined Effect of *Lactobacillus* And *Propionibacteria* Against *Salmonella* Species:-

During the joint cultivation of *Lactobacillus* and *Propionibacteria* against *Salmonella* species, it observed that the number of living cells of *Salmonella* species decreases. Mean reduction of the number of viable cells of the *Salmonella* species, to a great extent is a result of due to the production of organic acid having lower the pH.

The Result of individual and combined effect of *Lactobacillus* and *Propionibacteria* against *Salmonella* species all given in Table.

Effect of *Lactobacillus* and *Propionibactria* against *Salmonella* species.

8 Representative Strain	Combined Effect (Lacto+Propio.)
SS49	15mm
SS97	16mm
SS119	14mm
SS160	16mm
SS172	13mm
SS224	17mm
SS133	16mm
SS275	17mm

Note: Effect of *Lactobacillus* and *Propionibactria* against *Salmonella* species

individually were not notably affected upto the marks.

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