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Isolation and identification of Lactic Acid Bacteria from traditional sourdough of Chaharmahal and Bakhtiari province

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BACKGROUNDS

Lactic acid bacteria are gram-positive, non-spore forming, rod-shaped and cocci and have anaerobic respiration, and produce lactic acid as a final product during the fermentation of carbohydrates. These bacteria are probably abundant bacteria associated with human beings, which normally are associated with the digestive system and are also are present in habitats associated with food, including cereals.

OBJECTIVES

The aim of this study is to isolate and identify different species of lactic acid bacteria in traditional sourdough in Chaharmahal and Bakhtiari Province, and introduce them to the industry as probiotics.

MATERIALS & METHODS

After characterization of isolated bacteria, their probiotic properties were evaluated, such as resistance to acid, resistance to bile salts, Resistance to gastric juice enzymes such as pepsin and trypsin, the ability to produce antibacterial compounds, gas production and Exopolysaccharide production, then, the safety assessment of selected isolates was performed according to national standards and ultimately molecular detection was performed using 16S rDNA sequencing method.

RESULTS

The results showed that 3 strains were selected with codes A0302, A0402, A0501, which have no pathologic activity, they had the characteristics of resistance to acid over 10^6 cfu / ml and resistance to bile salts with deterrence factor less than 0.4, respectively, the characteristics of anti-bacterial compounds production against Escherichia coli and Staphylococcus aureus bacteria, the ability of resistance to gastric juice enzymes and A0402 had the ability to produce gas.

A0501 Sepidaneh	A0402 Sepidaneh	A0302 Sepidaneh	Code Place
-	-	-	Catalase
-	-	-	Hemolase
0.1210 ± 0.001000	0.2170 ± 0.002000	0.1655 ± 0.0035	OD
89.96	86.76	74.07	pH2
89.7	100	98.17	pH4
2×10^8	2×10^8	2×10^8	Control
-	+	-	Gas
1×10^8	2×10^7	1×10^8	Trypsin
4×10^7	1×10^8	5×10^7	Pepsin
12	10	15	E.coli mm
15	5	10	s. aureus mm
-	-	-	EPS
Pediococcus lolii	Lactobacillus fermentum	Pediococcus lolii	16S rDNA



CONCLUSIONS

which according to 16S rDNA sequencing, it was found that A0501 and A0302 strains had the highest affinity or Pediococcus lolii and A0402 strain had the closest with Lactobacillus fermentum which could improve the quality and quantity of sourdough and subsequently breads were produced with better quality.

REFERENCES

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