

# EVALUATION OF ANTIBIOTIC RESISTANCE IN *LIMOSILACTOBACILLUS REUTERI* AND *LACTOBACILLUS ACIDOPHILUS* FOR PROBIOTIC DIETARY SUPPLEMENT DEVELOPMENT

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Antibiotic resistance poses a significant concern in modern healthcare, often leading to gastrointestinal (GIT) disorders and necessitating effective treatment options. Probiotic dietary supplements have emerged as a common approach to address these disorders. However, safety regulations mandate that probiotic strains used in such supplements should not harbor antibiotic resistance plasmids.

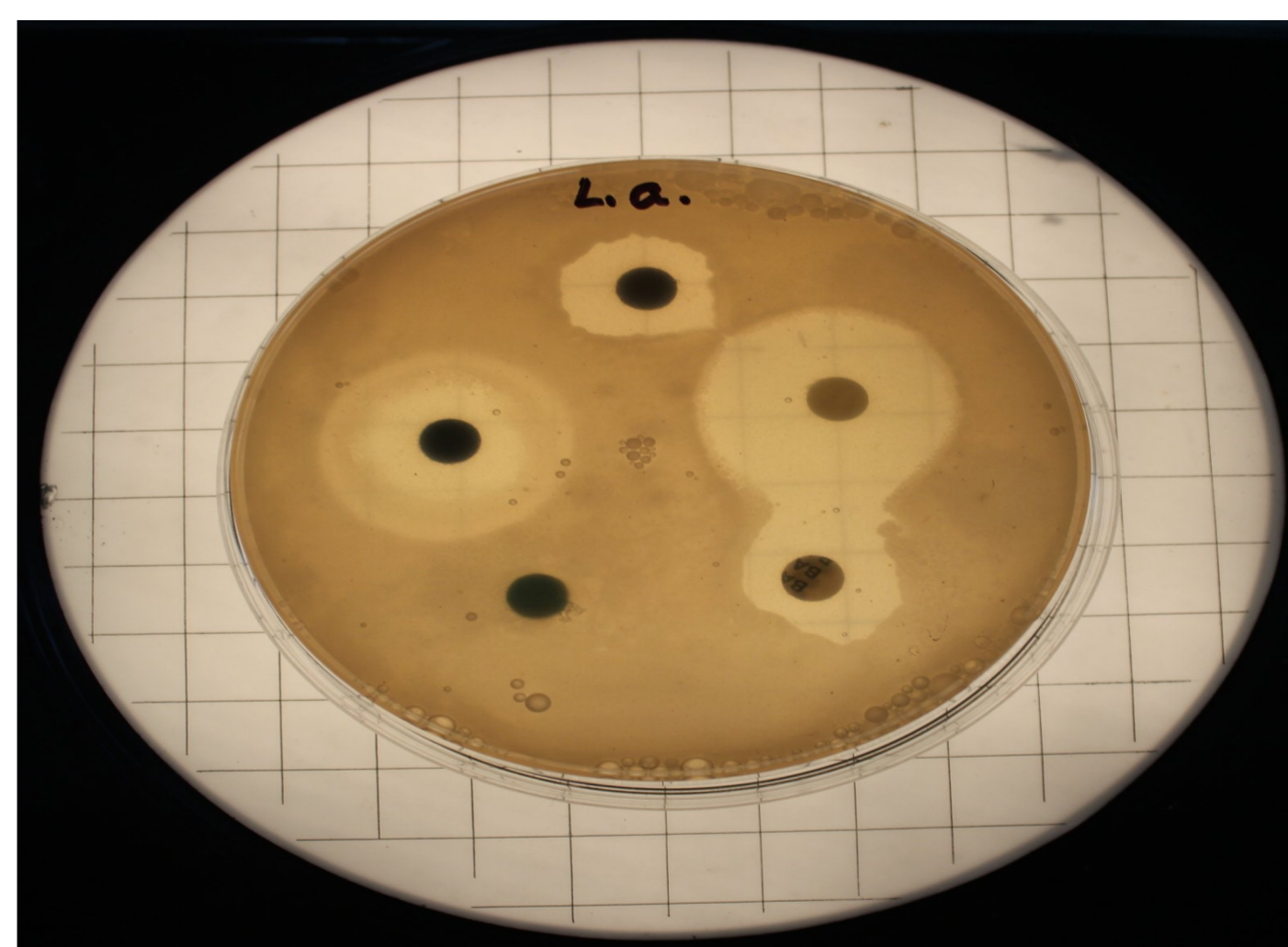
## The purpose of the work.

In our study, we focused on the development of a probiotic dietary supplement utilizing *Limosilactobacillus reuteri* and *Lactobacillus acidophilus*. To evaluate their antibiotic resistance profiles, we conducted an antibiotic sensitivity test using the modified disk diffusion method.

## Materials and methods.

The antibiotics tested included vancomycin, benzylpenicillin, ristomycin, chloramphenicol, and oxacillin, each at a concentration of 15 mg per disk. Bacterial inoculum was prepared by diluting a bacterial culture in saline to match a 1 McFarland turbidity standard.

One cubic centimeter of the inoculum was evenly spread over the surface of wort-agar medium within Petri dishes. Antibiotic disks were then placed on the inoculated plates. This procedure was repeated three times for each bacterial species to ensure the accuracy of the results. The test plates were incubated at 37°C for 24 hours.



## Results and discussions.

The obtained results are shown in table 1.

Table 1

Antibiotic	<i>Lm. reuteri</i>		<i>L. acidophilus</i>	
	Zone of growth retraction of the microorganism, mm	Sensibility	Zone of growth retraction of the microorganism, mm	Sensibility
Vancomycin	24±14	Very sensitive	19±2	Sensitive
Benzylpenicillin	5±1	Not sensitive	0	Not sensitive
Ristomycin	24±4	Very sensitive	15±1	Sensitive
Chloramphenicol	20±4	Very sensitive	25±1	Very sensitive
Oxacillin	24±7	Sensitive	15±11	Not sensitive

Our study revealed that both *Lm. reuteri* and *L. acidophilus* displayed no significant antibiotic resistance, indicating their suitability as probiotic strains for supplement production.

## Conclusions.

These findings contribute to the development of safer and more effective probiotic dietary supplements, addressing the growing concerns of antibiotic resistance and GIT disorders.