

Utilization of Tofu Dregs as a Carbon Source in an Alternative Growth Medium for *Lactobacillus plantarum* With a Concentration Factors of Tofu Dregs Flour

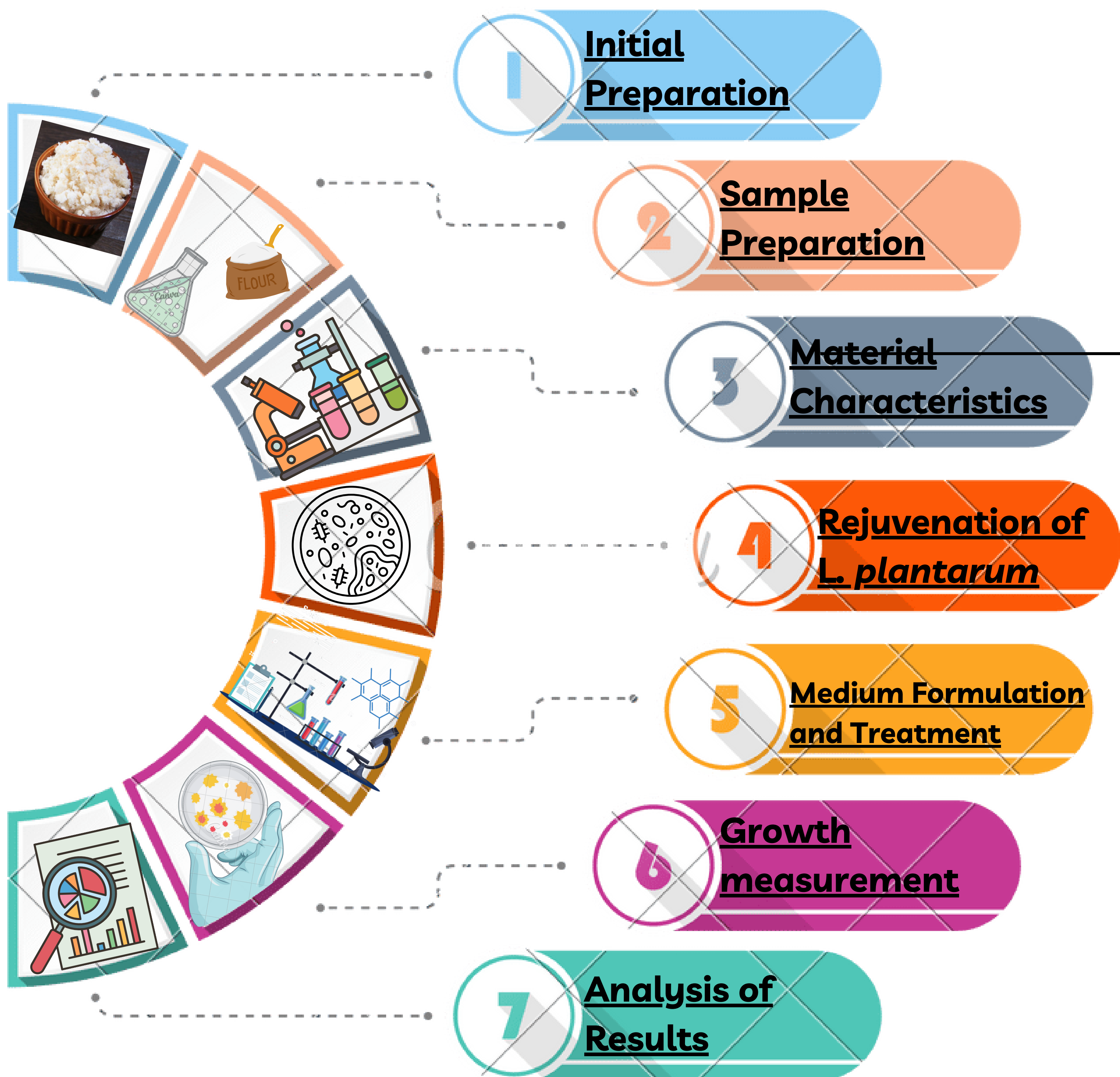
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Introduction

Lactobacillus plantarum bacteria include lactic acid bacteria which play a role in the fermentation process of vegetables, kimchi, cheese, miso, milk and other useful products. To grow, *L. plantarum* requires nutrients as a source of energy and cell formation. Optimally, *L. plantarum* grows at a temperature of 37 C with a pH value of 4.5-6.5. Carbon is the main component required in large quantities. The nature of *L. plantarum* as an amylolytic bacterium utilizes starch as a substrate for growth and produces products in the form of organic acids. Generally, the synthetic medium *Man Rogosa Sharpe* is used to isolate *L. plantarum* with a glucose composition of 2% (w/v), however, the price of the synthetic medium is high and it is not economical if used in large quantities, so using an alternative medium could be a solution. Tofu dregs are a by-product of the tofu production process and still have high nutritional content, one of which is carbohydrate content which reaches 26.84%. So this research will analyze the potential of tofu dregs as a carbon source in alternative growth media for *L. plantarum* and analyze the effect of tofu dregs flour concentration on the growth of *L. plantarum*. This research will carry out an analysis of proximate content to determine the content of tofu dregs flour, and to analyze growth a turbidimetric test, total plate count, sugar consumption test, and total titrated acid test will be carried out.

Method



Conclusion

- Tofu dregs with a carbohydrate content of 73.17% have the potential to be used as a carbon source in an alternative medium for *L. plantarum*
- The best treatment results were obtained in treatment A2 with a concentration of 10% (w/v) supported by the highest growth yield data.



Result

Chemical Analysis of Tofu Dregs Flour

Parameter (%)	Analysis Results
Water Content	7,47
Proteins	14,85
Crude Fat	2,45
Ash Content	2,06
Carbohydrate	73,17



Results of Growth Yield and Product Yield

Medium Type	Treatment (% b/v)	Yx/s (10 ⁶ CFU/mg)	Yp/s
Treatment	A1 (5)	1,14 ± 0,3	0,13 ± 0,0
	A2 (10)	1,40 ± 0,5	0,19 ± 0,0
	A3 (15)	0,97 ± 0,4	0,15 ± 0,0
	A4 (20)	1,45 ± 0,7	0,42 ± 0,1
	A5 (25)	1,12 ± 0,3	0,25 ± 0,0
	A6 (30)	1,27 ± 0,2	0,27 ± 0,0

Growth Analysis of *L. plantarum*

