

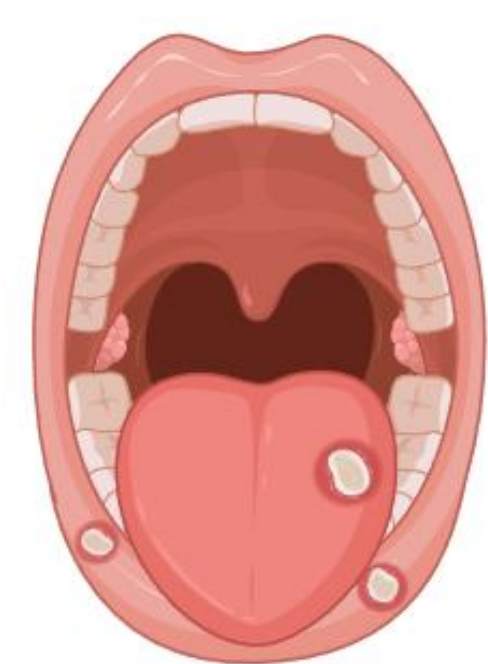
Development and Characterization of Sodium Alginate Mucoadhesive Films for Oral Applications

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Introduction



- Oral mucositis → Side effect → Chemo and radiotherapy
- Mucoadhesive films are an alternative to conventional methods of drug delivery

Polymeric Matrix

Sodium alginate

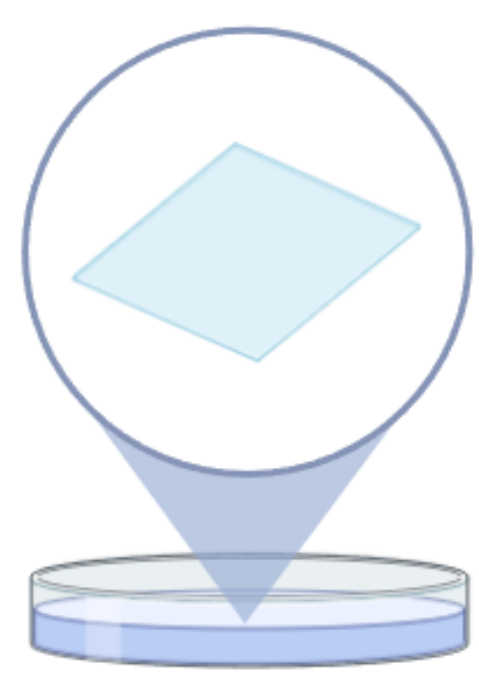
Glycerin

→ Natural polysaccharide

→ Plasticizer

→ Mucoadhesive properties

→ Biocompatibility



Objective

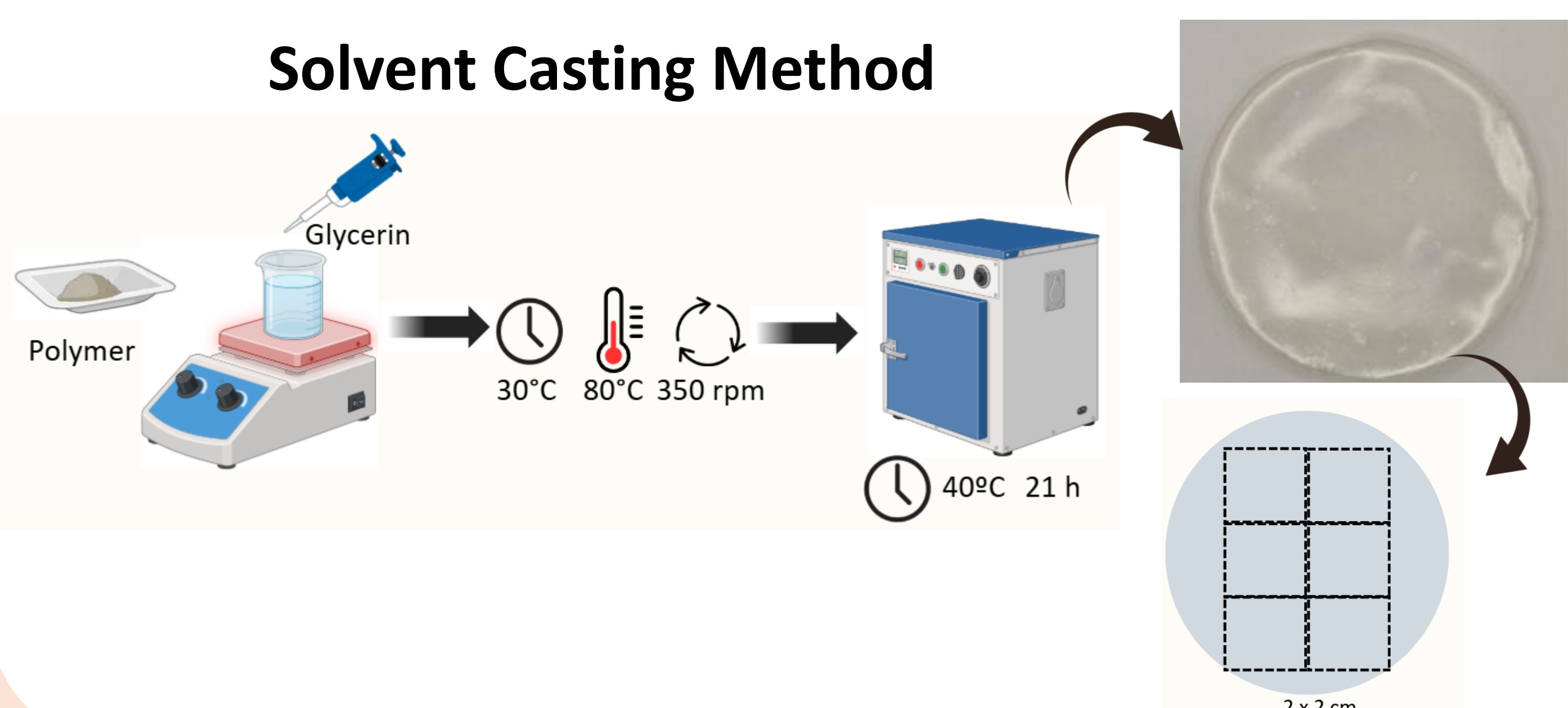
Develop and characterize mucoadhesive sodium alginate films through a Central Composite Design – CCD, evaluating the impact of different concentrations on the properties of the films.

Independent variable	Levels				
	- 1.414	- 1	0	+ 1	+ 1.414
Sodium alginate (%)	1.79	2	2.5	3	3.5
Glycerin (%)	10.76	12	15	18	19.25

Keywords: Oral mucositis, mucoadhesive films, sodium alginate, experimental design.

Methodology

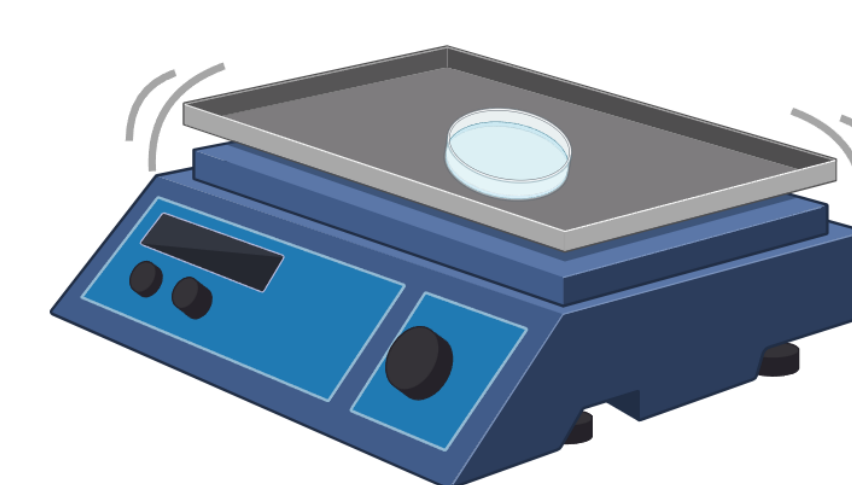
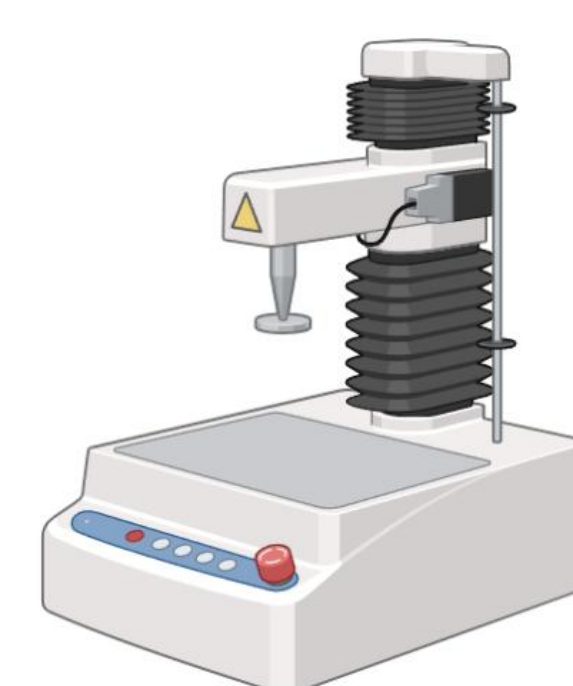
Solvent Casting Method



Characterization

Mechanical Tension

Disintegration time



Stable Micro Systems
TA.XT plus (UK)

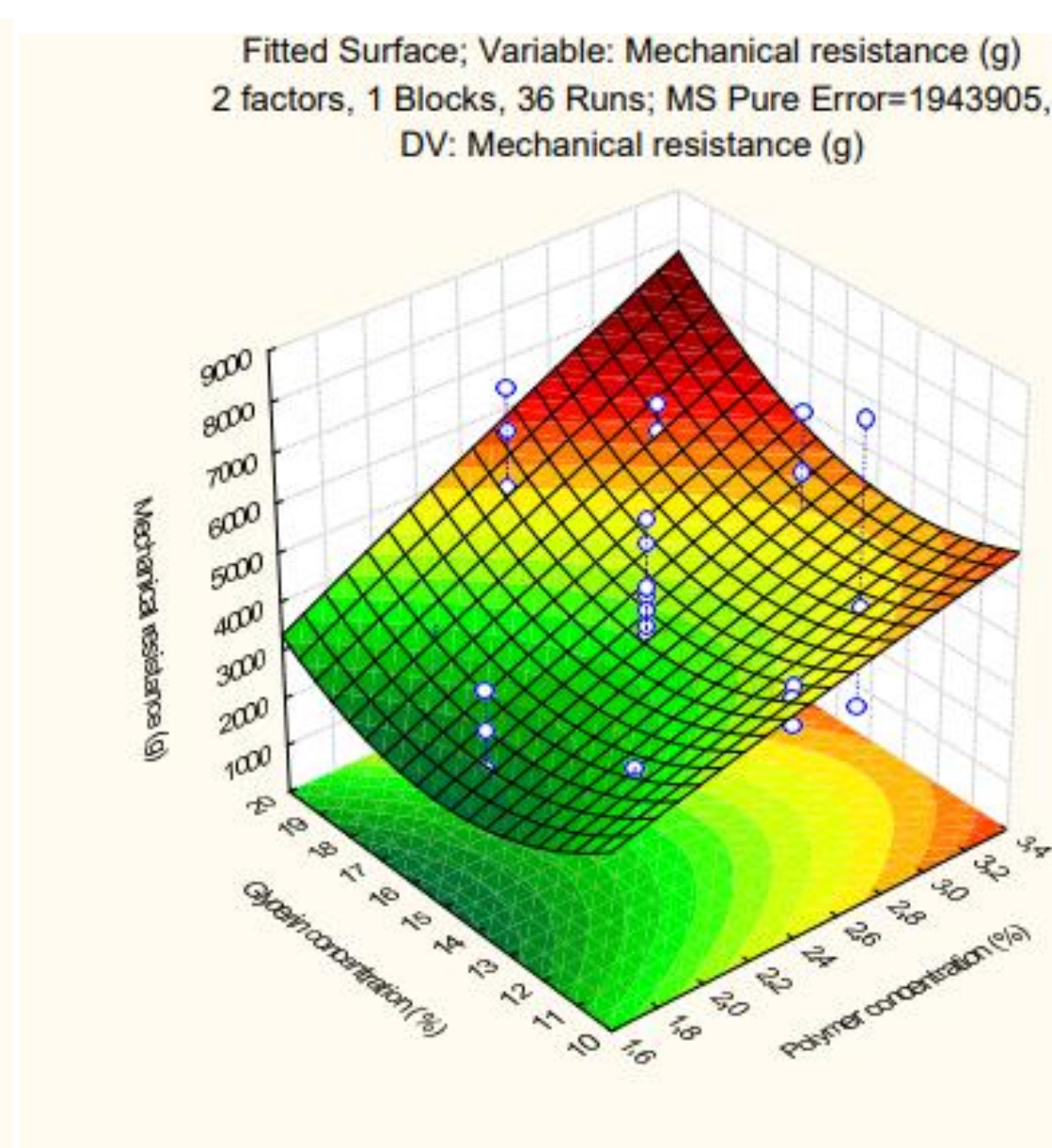
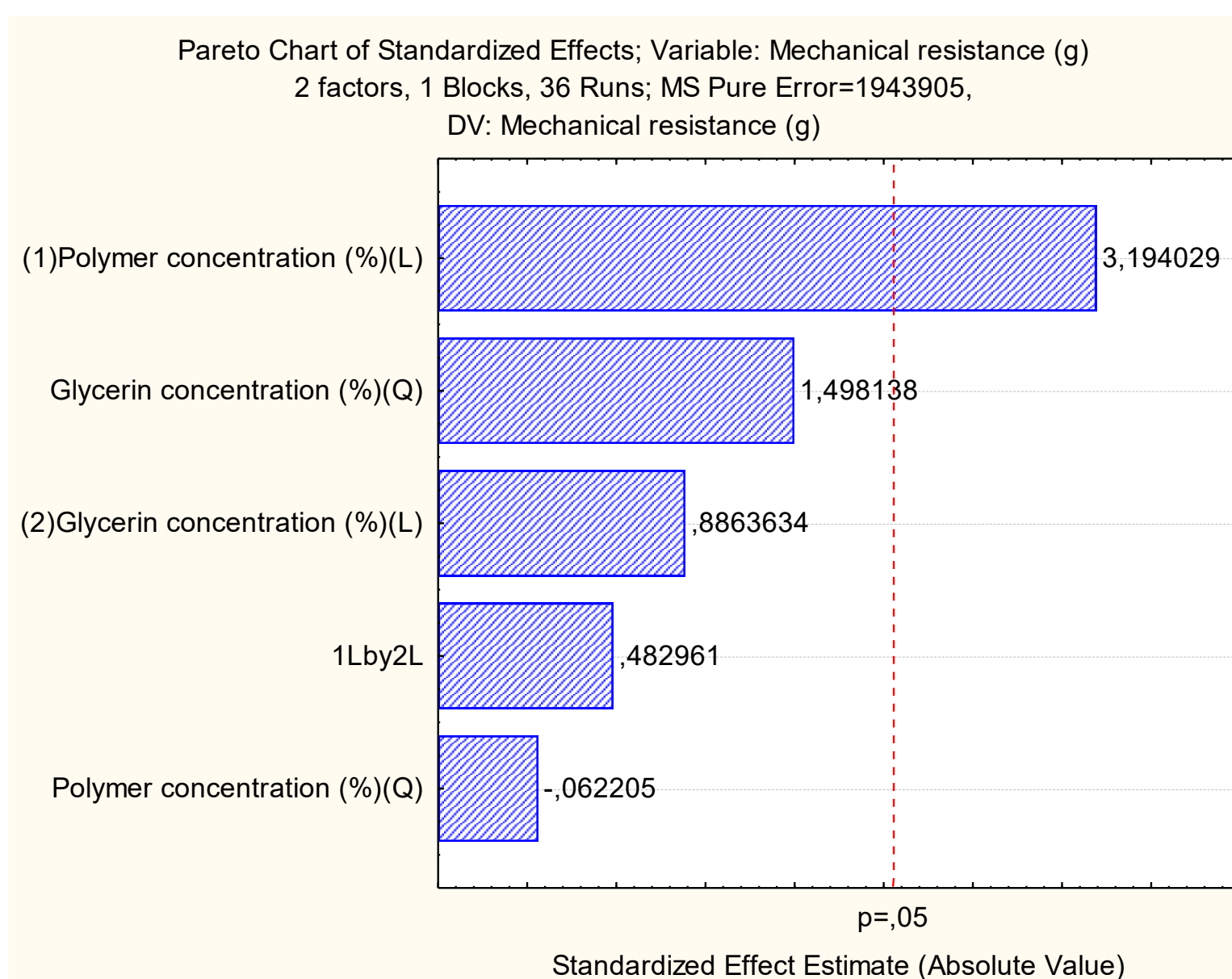
Orbital Shaker + PBS 6.8

Statistical Analysis

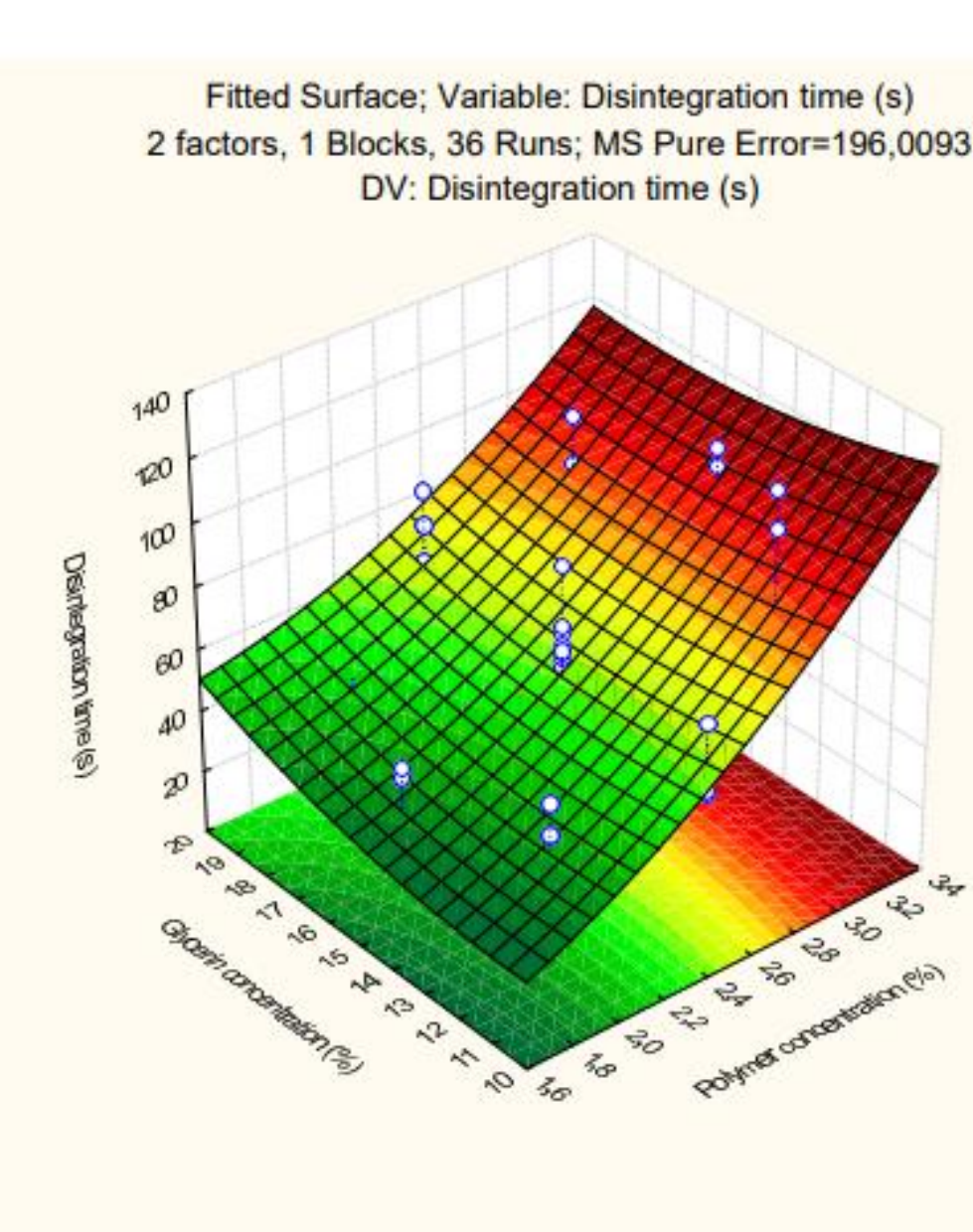
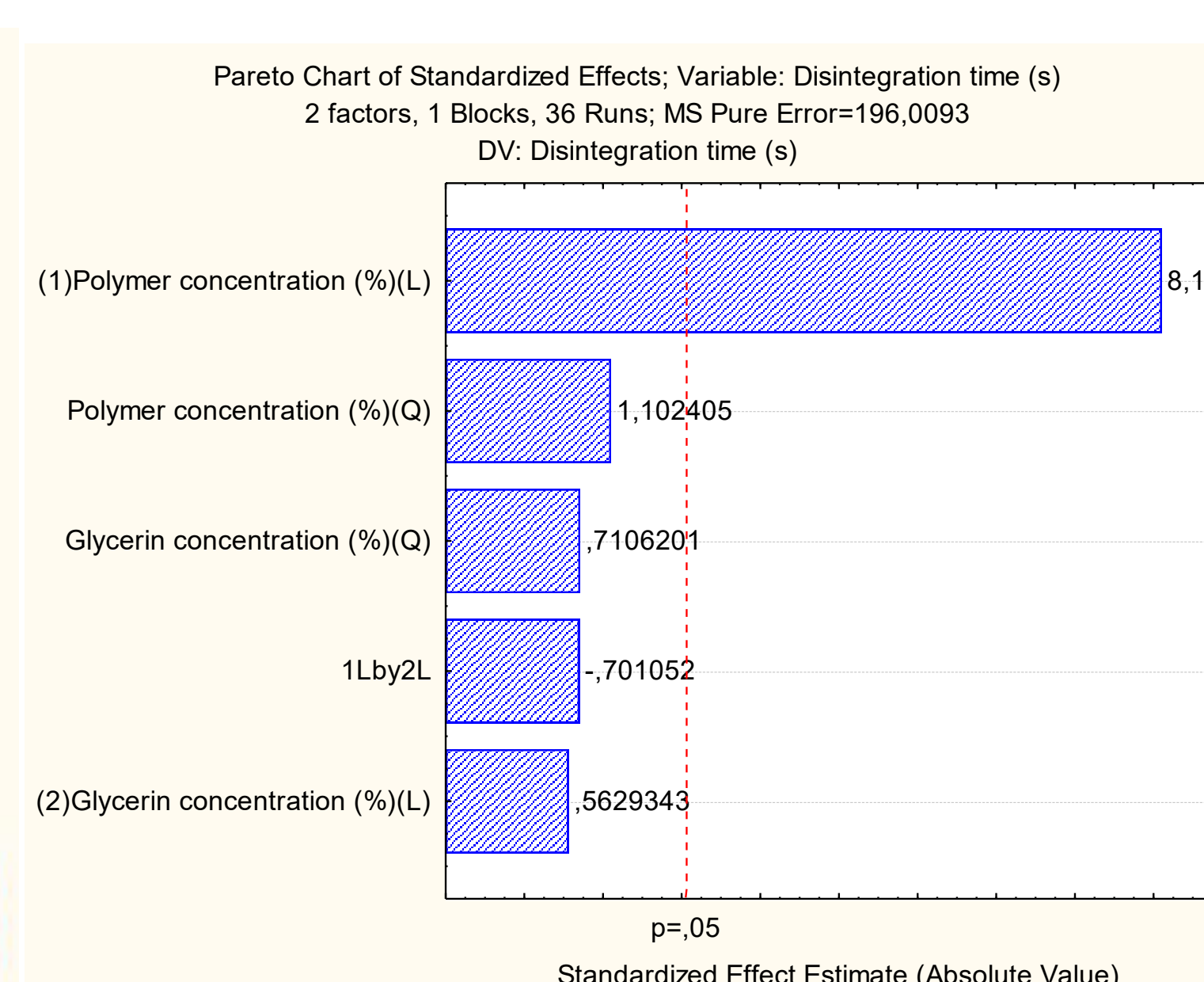


Results and Discussion

Mechanical resistance



Disintegration time



→ Polymer concentration: Significant for both tests ($p < 0,05$)

→ Chosen formulation: Run 7, with 12% sodium alginate and 12% of glycerin

Conclusion and Next steps

The formulation showed suitable physicochemical properties for the proposed pharmaceutical form, making it a promising candidate for the incorporation of synthetic drugs or bioactive extracts with therapeutic potential.

→ Incorporation of natural extract

→ Mucoadhesion assays

→ Compare mechanical properties



References

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