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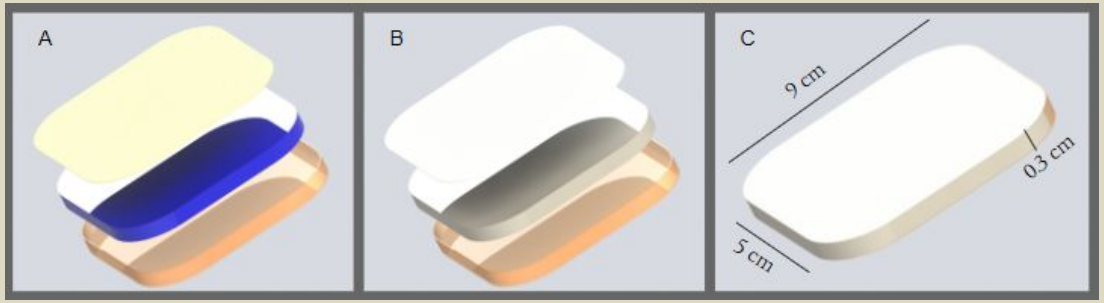
MOOD STABILIZING HYDROGEL TRANSDERMAL PATCH

High-acyl gellan gum (HAGG) patch that will deliver sodium valproate, and use a polydopamine coating to adhere to the skin.

Purpose

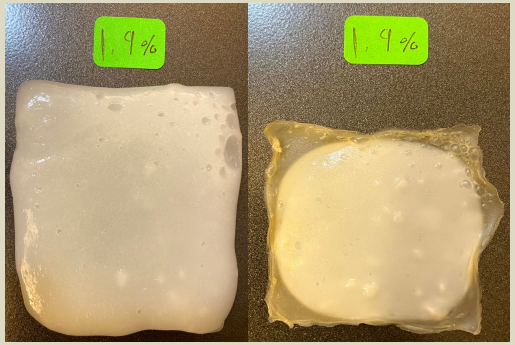
- Improve transdermal drug delivery methods for mood stabilizers.

- The **GOAL** of this project is to develop and design a hydrogel transdermal patch that will reduce plastic waste in the environment and be a better alternative than oral drug administration



[A] Composite [B] Full [C] Constructed

Drying tests: Learning how quickly our patches dry out was important for determining whether or not to use plastic backing, and choosing gel percentage.



Strength Test: Different concentrations of HAGG were explored to find qualitatively which concentration had the greatest strength

- 1.6 wt% HAGG proved to have the best properties

Conclusion

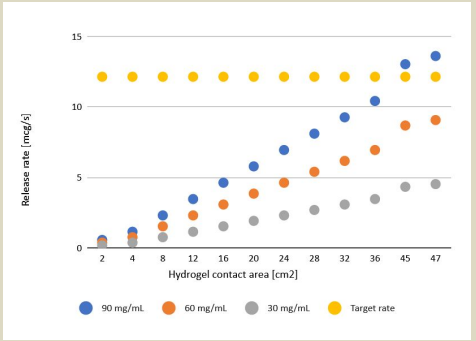
- Transdermal patches are ideal for slow and controlled drug release

- More prototyping and time required to explore release rates and making patch optimal

Modeling

Drug Release:

The therapeutic dosage rate needs to be reached, while also maintaining a relatively small patch dimension. Balancing these involved changing the concentration of the loaded valproate.



Adhesion:

The ideal patch would be sticky enough that it would remain comfortably on the skin, but could be taken off easily by anybody that will use it.

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