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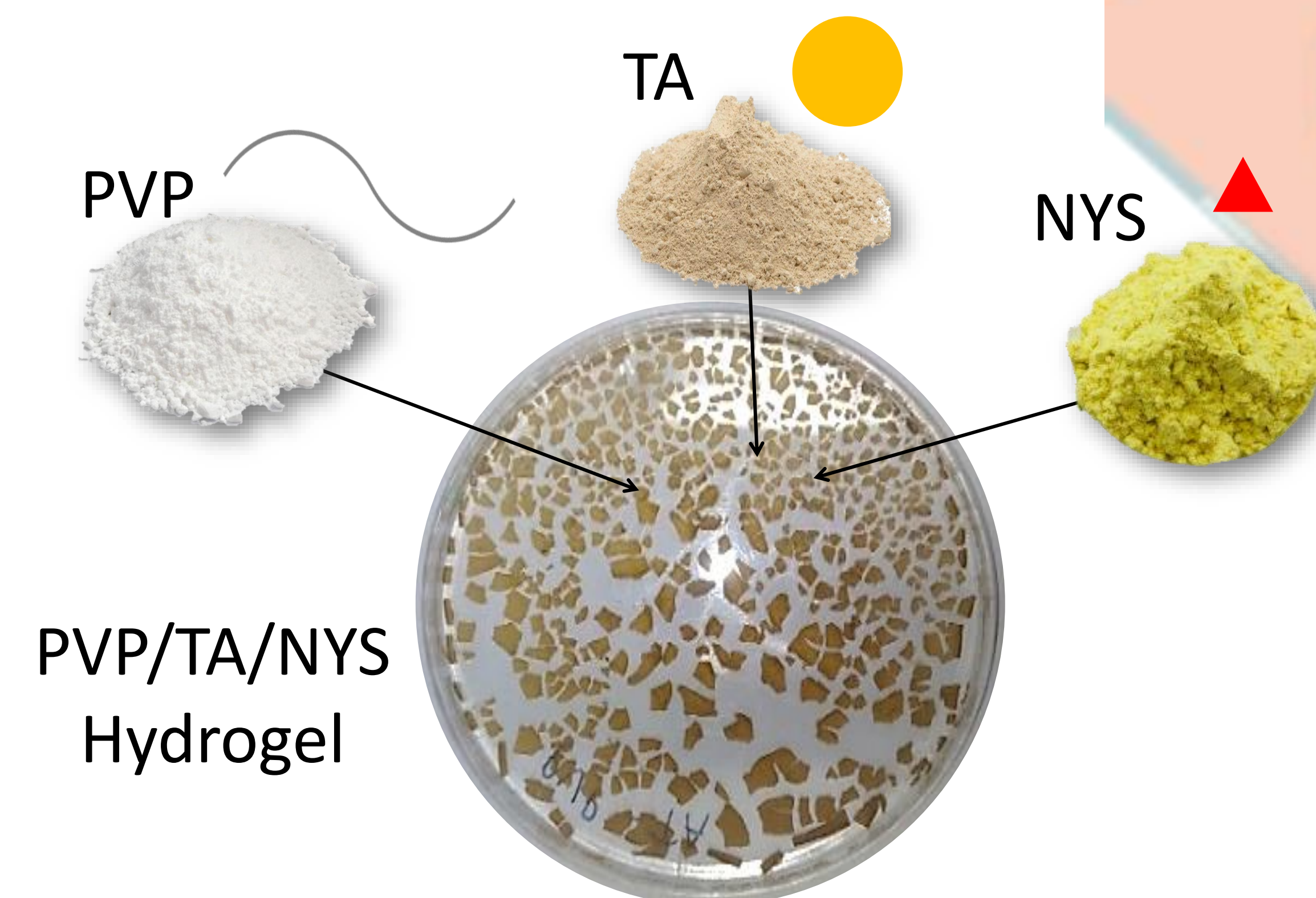
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Introduction

- There has been an increase in microbial skin infections due to rising global temperatures.
- Conventional treatment methods have drawbacks in that they are not site specific, are slow acting and require constant reapplication.
- Polyvinylpyrrolidone (PVP) is a biocompatible polymer that is used in various medical application.
- Tannic Acid (TA) is a natural polyphenol that has the potential to be used in wound dressing.
- The purpose of this study was to prepare hydrogels of PVP by crosslinking with TA and loading with an antifungal drug, Nystatin (NYS).

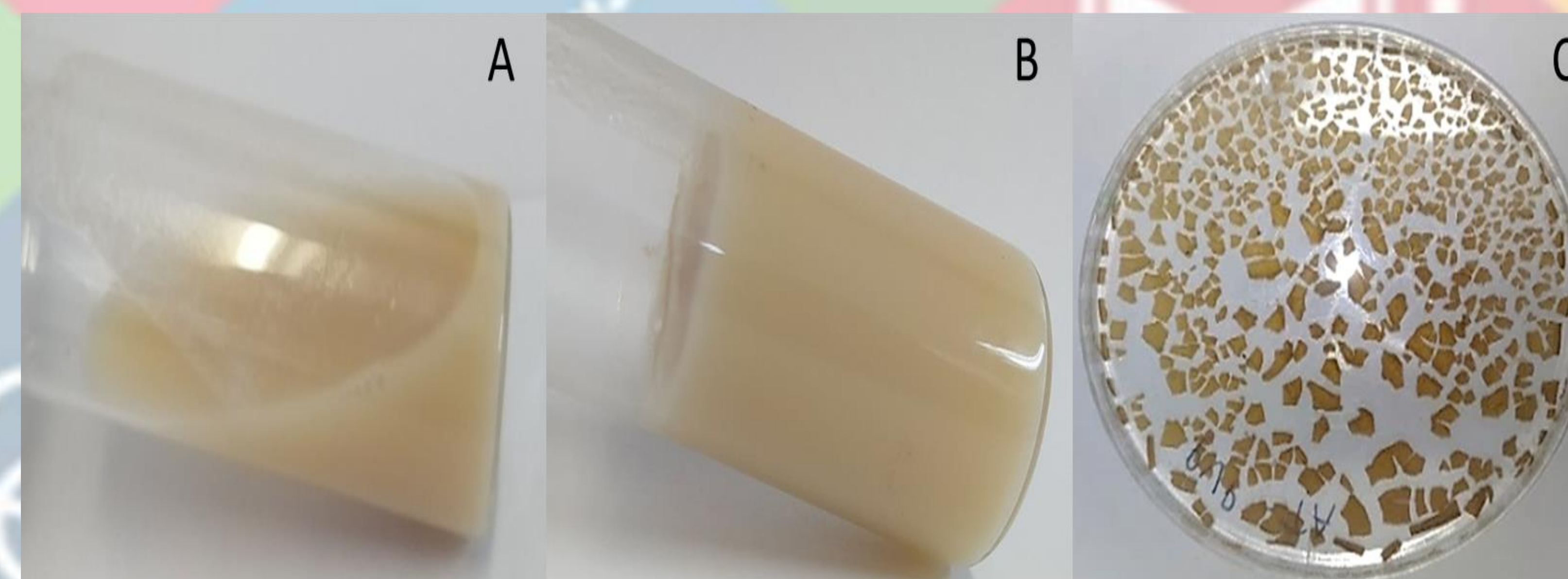
Methodology

- PVP/TA/NYS hydrogels were prepared.

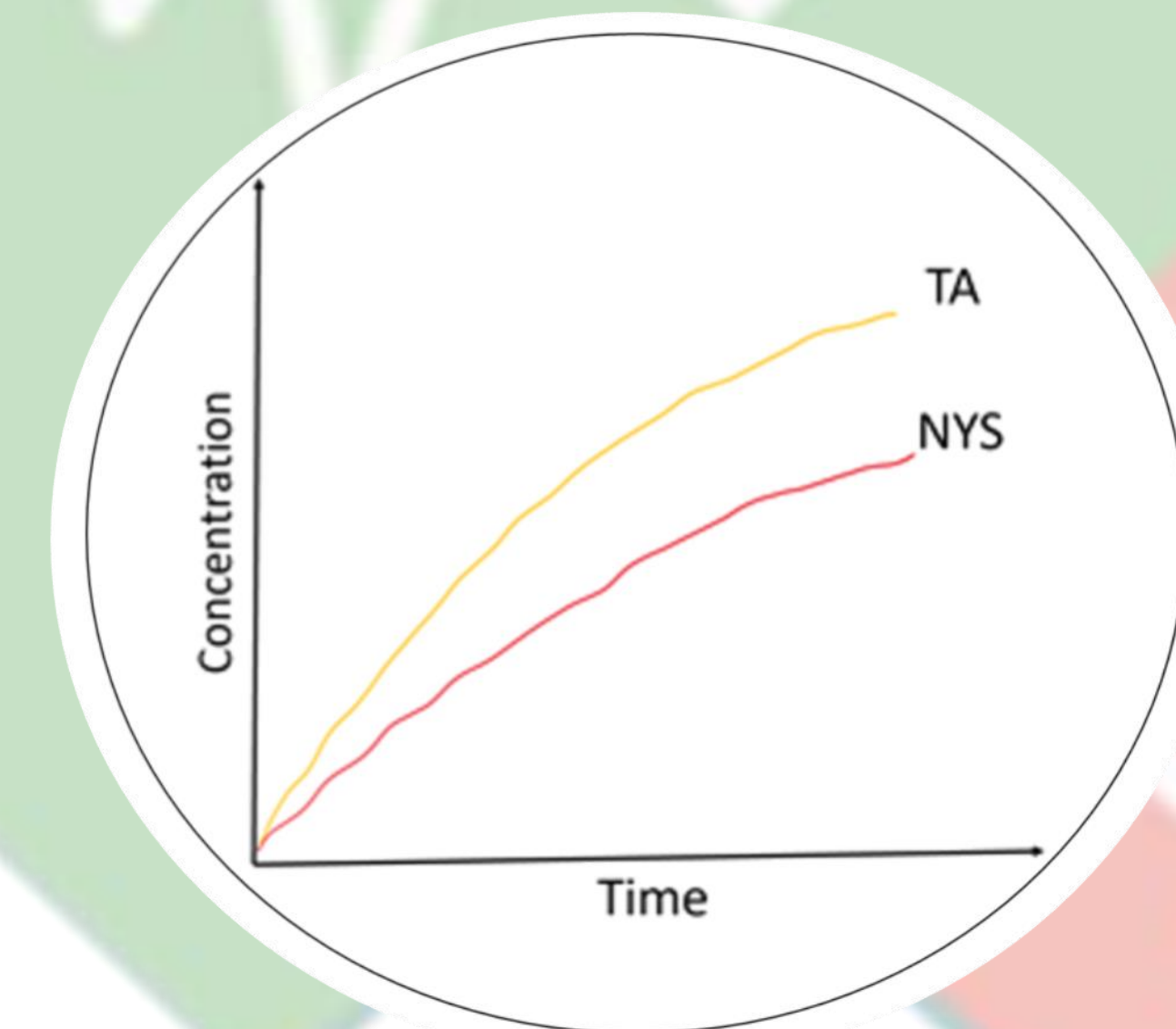
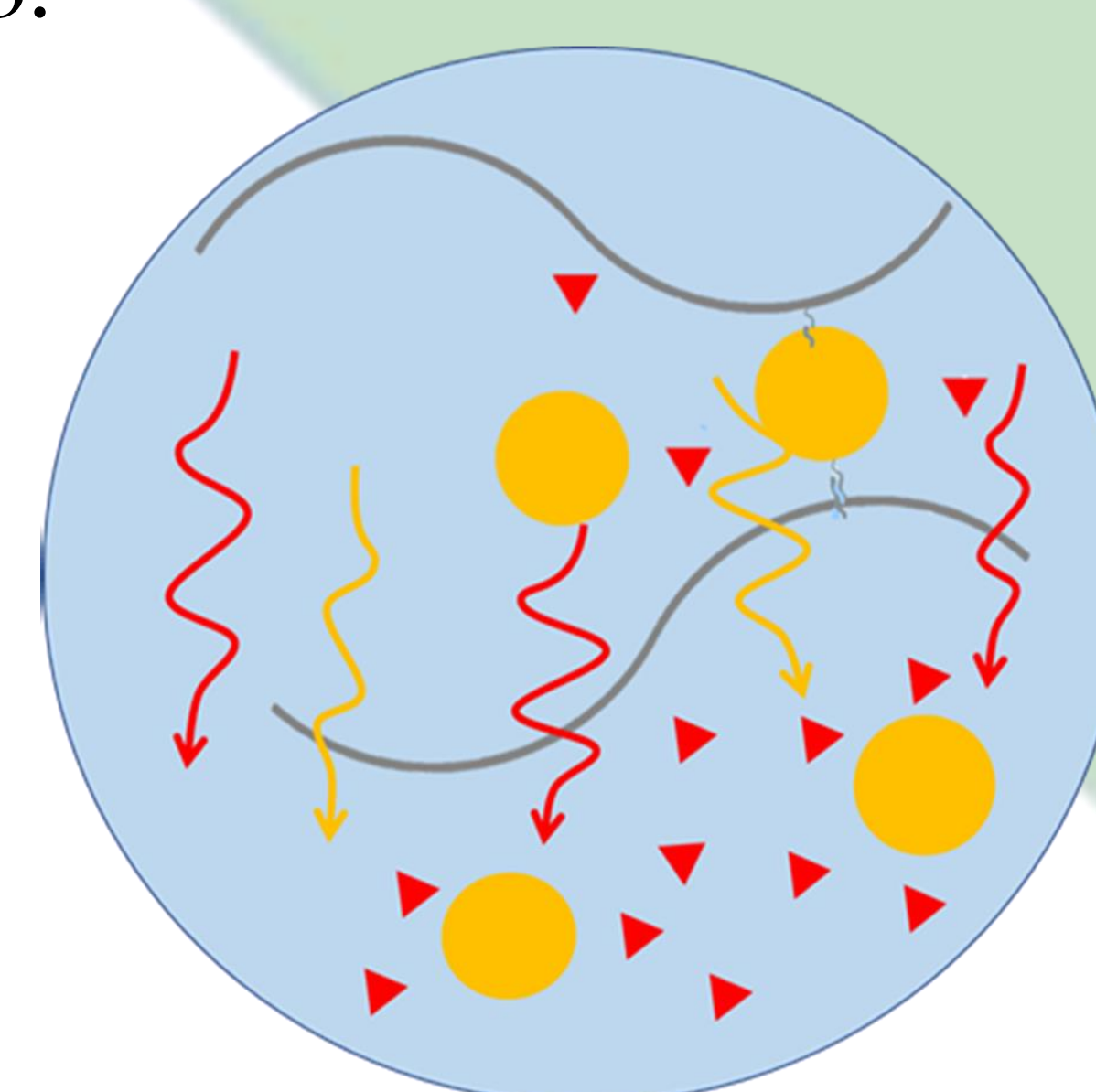


Results and Discussion

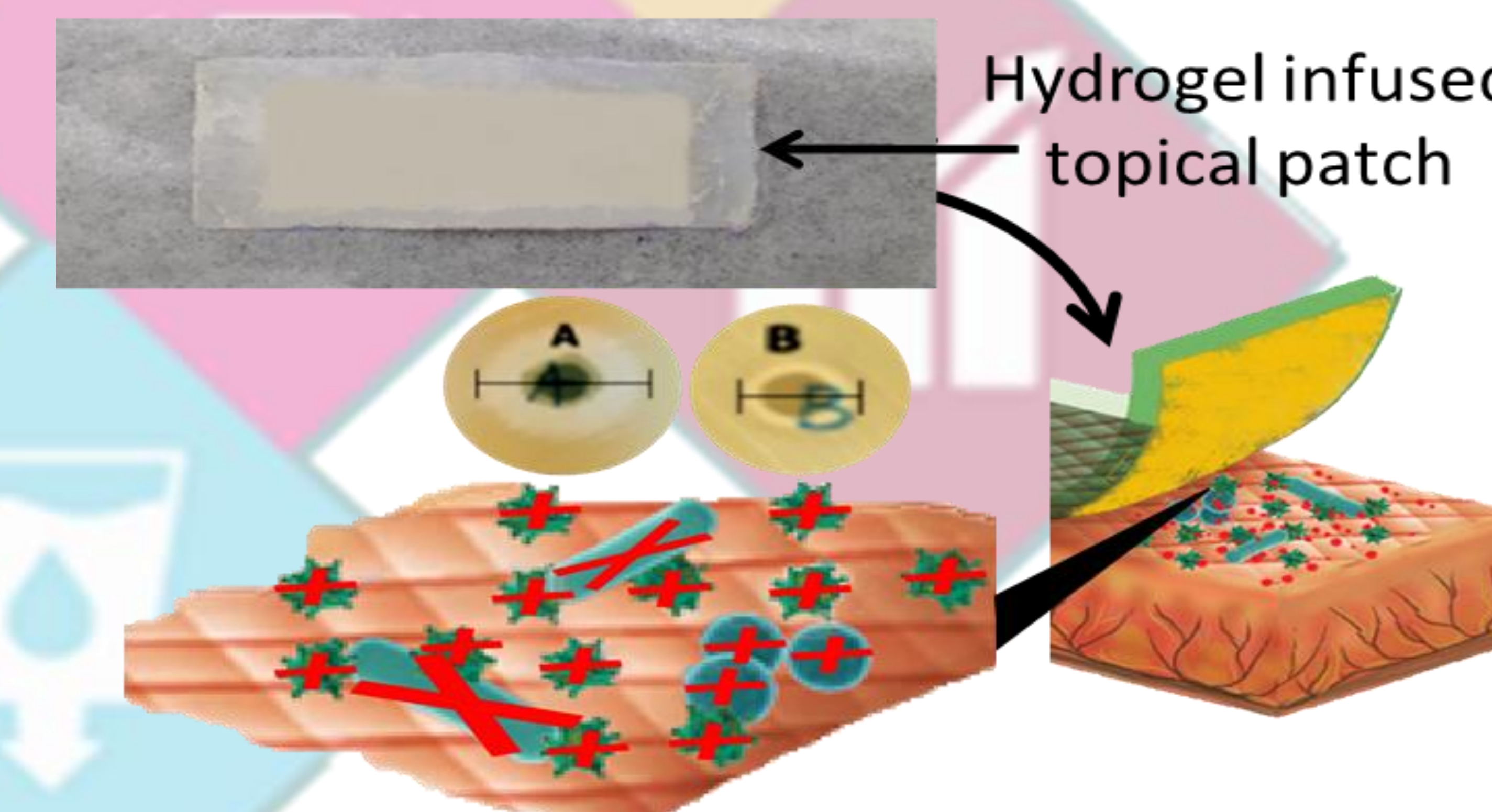
- PVP/TA/NYS hydrogels were prepared by crosslinking PVP with different concentrations of TA and loaded with NYS.
- The formation of the hydrogel was due to hydrogen bonding between the carbonyl group of PVP and the –OH group of TA.



- The swelling of the hydrogels in distilled deionized water, simulated body fluid and simulated swear decreased with increasing TA concentration and showed pH sensitivity.
- The prepared hydrogel showed dual release of both TA and NYS.



- Topical patches were developed by adhering the powdered drug loaded hydrogel on silicone.
- Invitro studies reveled the release of TA and NYS from the hydrogel provided a two-fold benefit in the treatment of skin infections by being antibacterial and antifungal.
- Additionally, these topical patches are also biodegradable.



Conclusion

- Topical patches were developed by adhering the powdered drug loaded hydrogel on silicone.
- The release of TA from the hydrogel in addition to NYS provided a two-fold benefit in the treatment of skin infections.
- These topical patches would be especially helpful for diabetic patients who are more prone to infection due to slow wound healing.