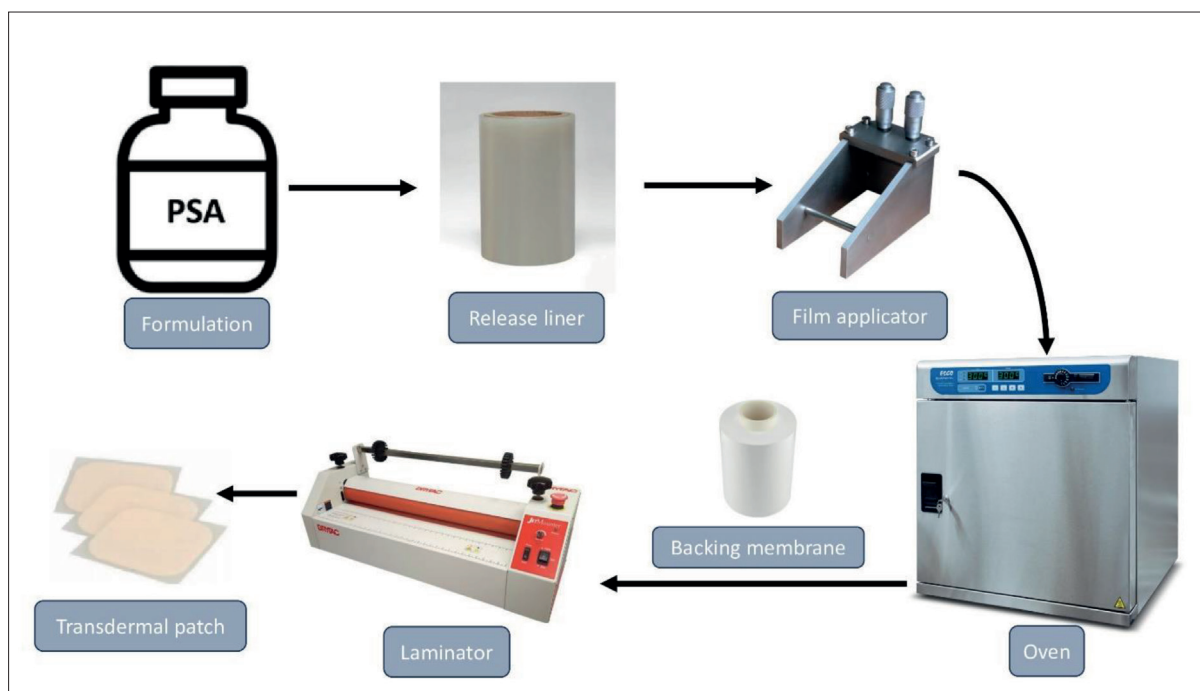


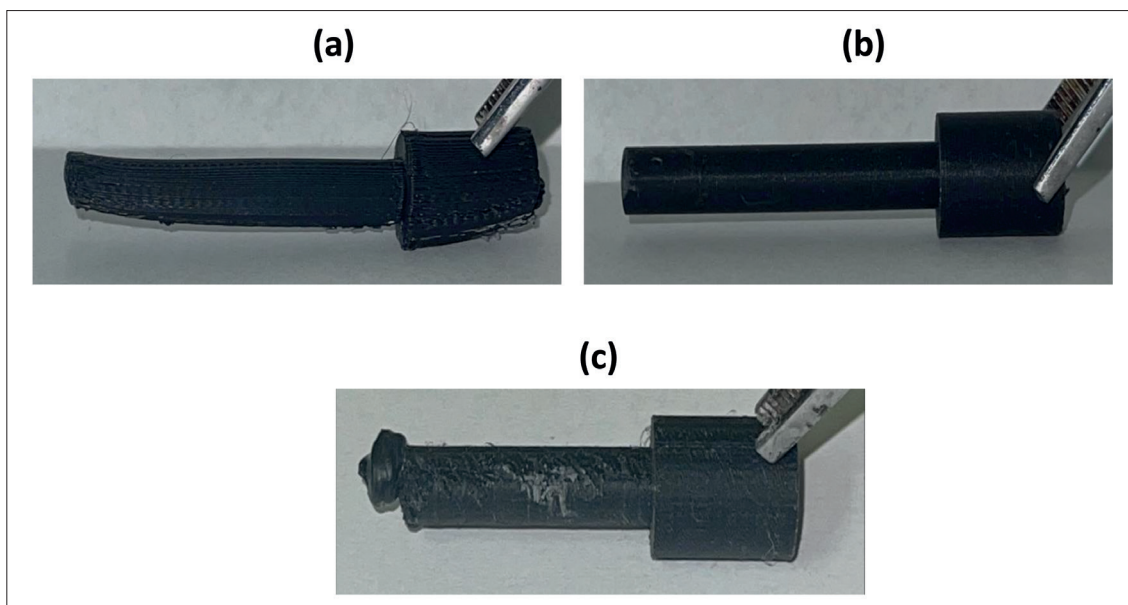
RESEARCH ARTICLE

Development of novel skin-mimetic substrate with 3D printing to assess the adhesion properties of transdermal patches

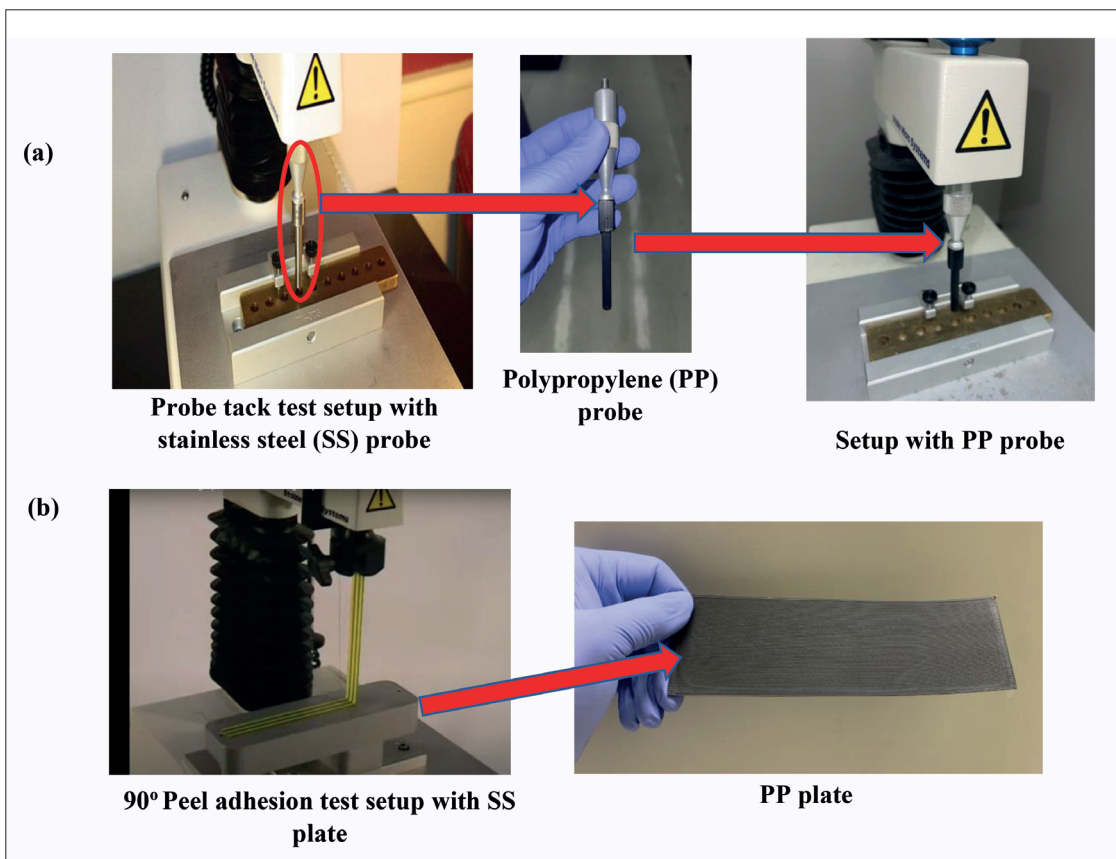
Supplementary file



**Figure S1.** Illustration of the patch manufacturing process, depicting components such as pressure-sensitive adhesive (PSA), release liner, film applicator, oven, backing membrane, laminator, and transdermal patches.



**Figure S2.** Images of probes with warping and surface deformation that occurred during printing parameter optimization compared to probes manufactured under optimal printing conditions: (a) side-view of the warped probe printed horizontally; (b) side-view of the optimized probe printed horizontally; and (c) side-view of the warped probe printed vertically, displaying surface deformation.



**Figure S3** Adhesion testing setup using Polypropylene probe and plate (a) Probe tack test setup featuring stainless steel replacement with PP probe for adhesion testing. (b) Peel adhesion setup featuring stainless steel plate replacement with PP plate for adhesion testing.

**Table S1. Effect of different chamber and build-platform temperatures on probe quality**

Batch	Chamber temperature (°C)	Build platform temperature (°C)	Probe quality
1	60	0	Warped and poor
2	100	0	Warped and poor
3	80	80	Warped and poor
4	70	90	Excellent with no warping

**Table S2. Effect of different thickness on probe quality**

Batch	Layer thickness (µm)	Probe quality
1	30	Warped and poor
2	50	Warped and poor
3	100	Warped and poor
4	200	Excellent