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Reflectance-Based Elastic Polymer Test: A Novel Fast-Screening Method for Predicting Skin Adhesion Performance of Liquid Foundation

298

PARAGONCORP

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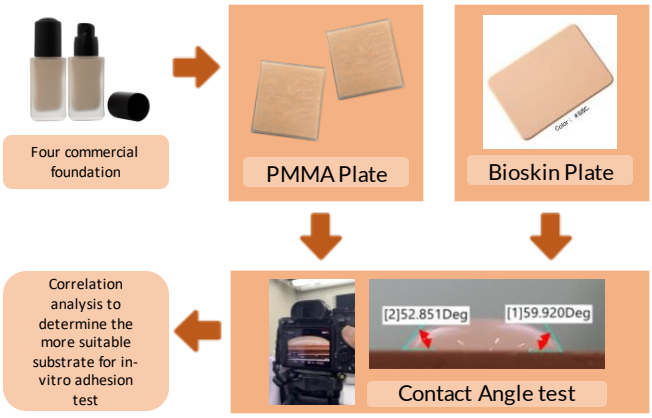
INTRODUCTION

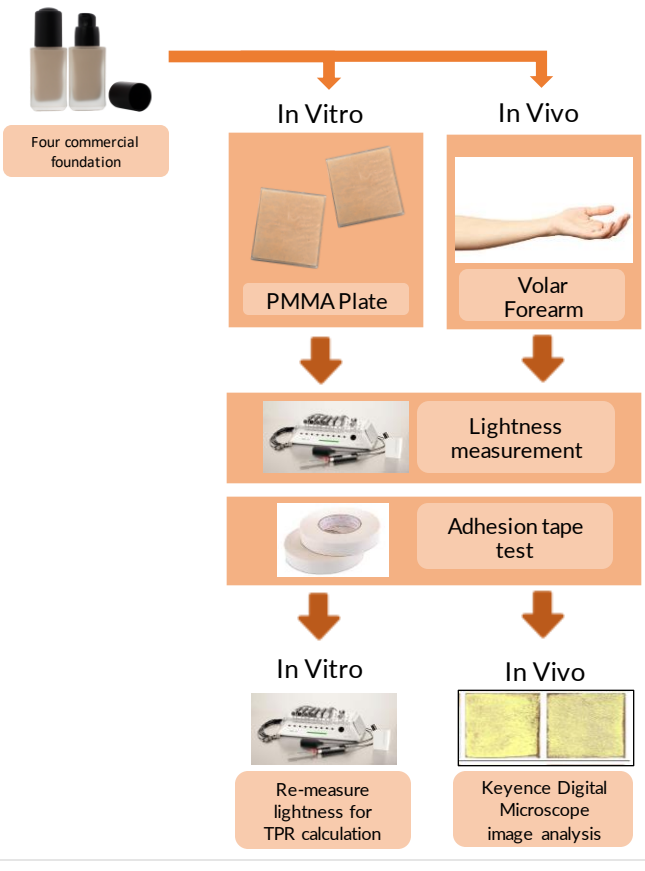
Long lasting effect has become a basic requirement for foundation products in which consumers would like to look flawless throughout the day. To achieve that property, the products must have proper spreadability and wettability on the skin, creating high quality of skin-foundation bond that brings good skin adhesion. Therefore, it is crucial to develop reliable adhesion tests to provide faster and objectively quantified results, especially during the formulation stage.

MATERIALS & METHODS

CONTACT ANGLE TEST
for substrate determination



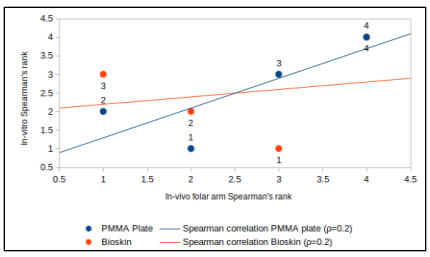
ELASTIC POLYMER TEST



RESULTS & DISCUSSION

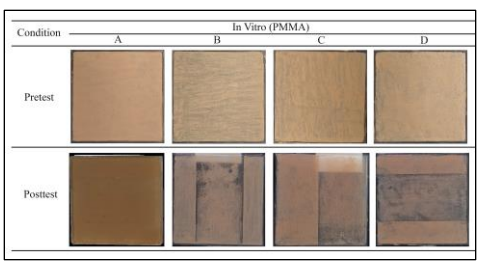
Water contact angle in PMMA plate has a greater correlation (ρ=0.8, p=0.331) with in-vivo result, compared with Bioskin (ρ=0.2, p=0.985). These results confirmed that the PMMA plate is a more suitable substrate for in-vitro adhesive test.

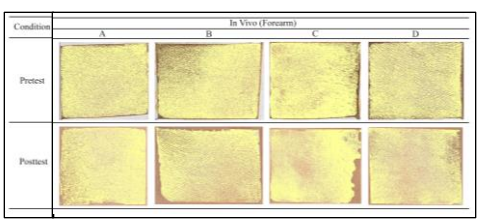
Attachment Substrate Determination



TPR results from in-vitro tape test on PMMA plate showed a strong positive correlation against the in-vivo adhesion test (ρ=1.0, p=0.2) and successfully differentiate foundation samples attachment quality to the substrate.

Reflectance-based elastic polymer test method evaluation





TPR result from the tape test on the PMMA plate exhibited a strong positive correlation against the area foundation reduction of in vivo result. It was also proven by the physical appearance at the pre- and post-test imaging by using the imaging analysis.

Sample C as non-long lasting foundation formula was the easiest foundation that can be unattached by the physical contraction while sample A (long-wear foundation formula) was the one which has the best skin adhesion property.

Visual assessment of post-tape foundation in in-vitro adhesion test which leads to subjective observational bias, is minimalized with the TPR calculation and quantification of foundation attachment value.

CONCLUSIONS

This study showed preliminary insights about the in-vitro foundation adhesion test using PMMA plate that can reduce observational bias by TPR calculation and quantification of foundation attachment using color intensity value.

ACKNOWLEDGEMENTS

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