

Supporting Information

Tailoring Hydrophilicity of Cotton Thread for Efficient Separation of Sudan I and Rhodamine B

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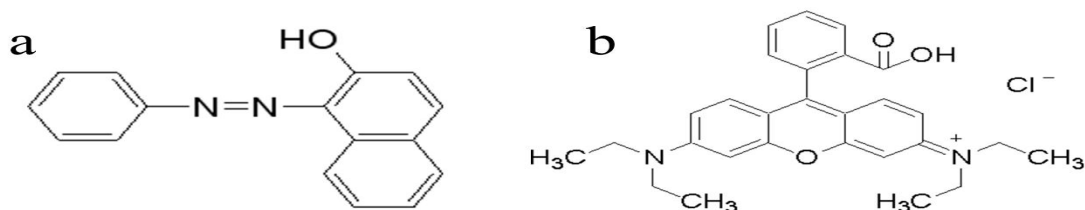


Fig. S1 (a) The formula of Sudan I; (b) The formula of Rhodamine B.

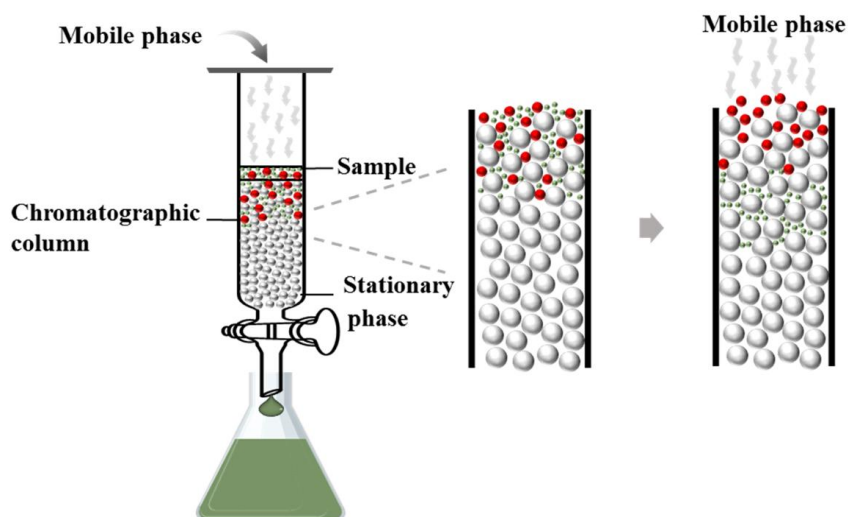


Fig. S2 Schematic diagram of conventional chromatography.

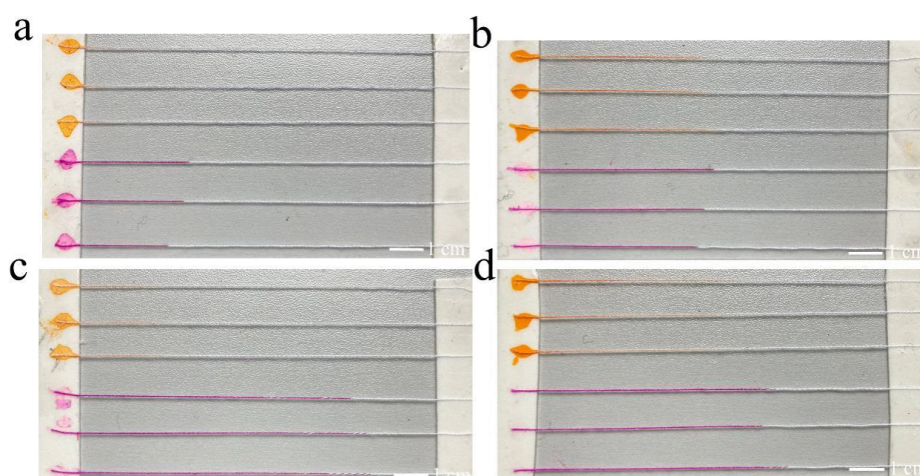


Fig. S3 Thread-based movement of Sudan I and Rhodamine B mixtures on original and plasma-treated thread. (a) Movement of Sudan I and Rhodamine B in the ethanol/water solution on untreated thread. (b) Movement of Sudan I and Rhodamine B in the formic acid/methanol solution on untreated thread. (c) Movement of Sudan I

and Rhodamine B in the ethanol/water solution on plasma-treated thread. (d) Movement of Sudan I and Rhodamine B in the formic acid/methanol solution on plasma-treated thread.

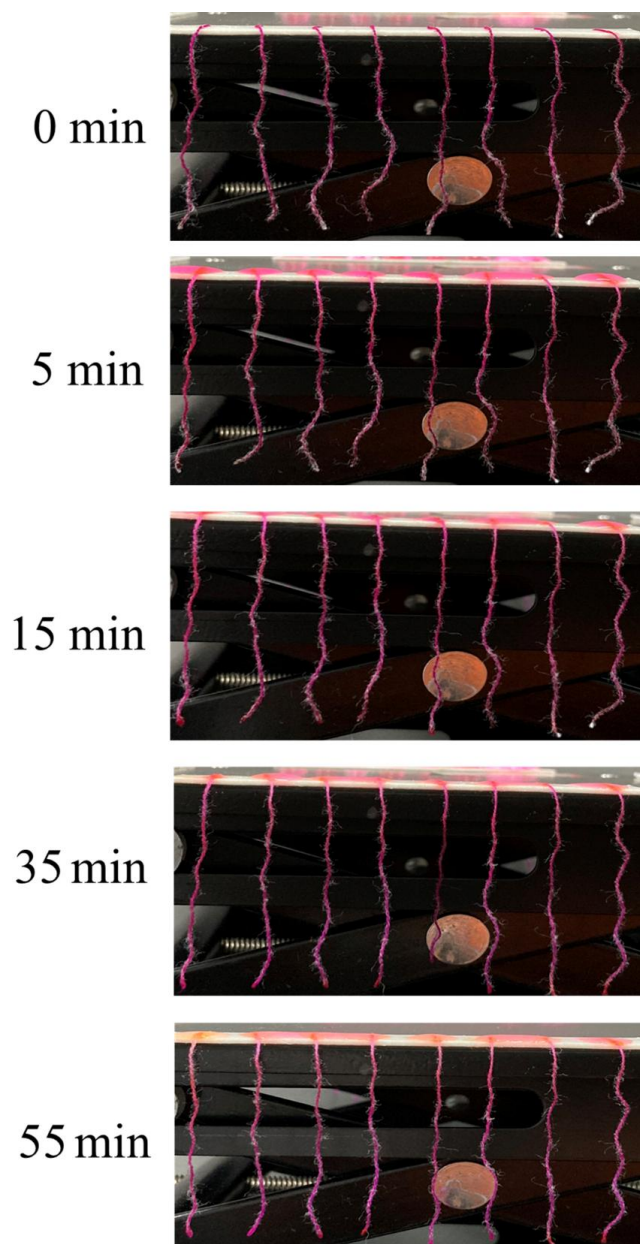


Fig. S4 Chromatography of Sudan I-Rhodamine B-ethanol/water mixture pre-loaded on thread using the ethanol/water solvent as a developing reagent.

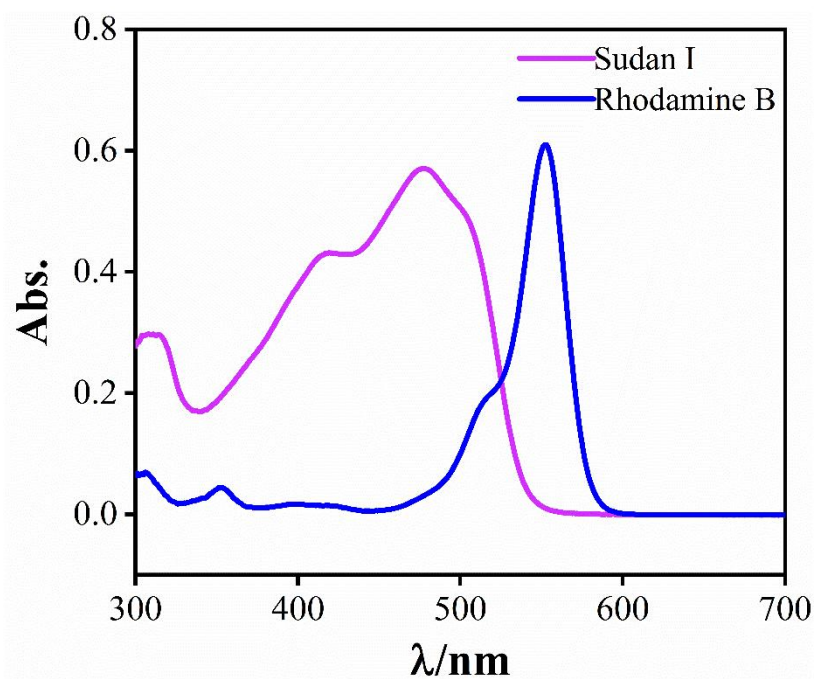


Fig. S5 UV-vis spectra of the standard Sudan I and Rhodamine B solutions

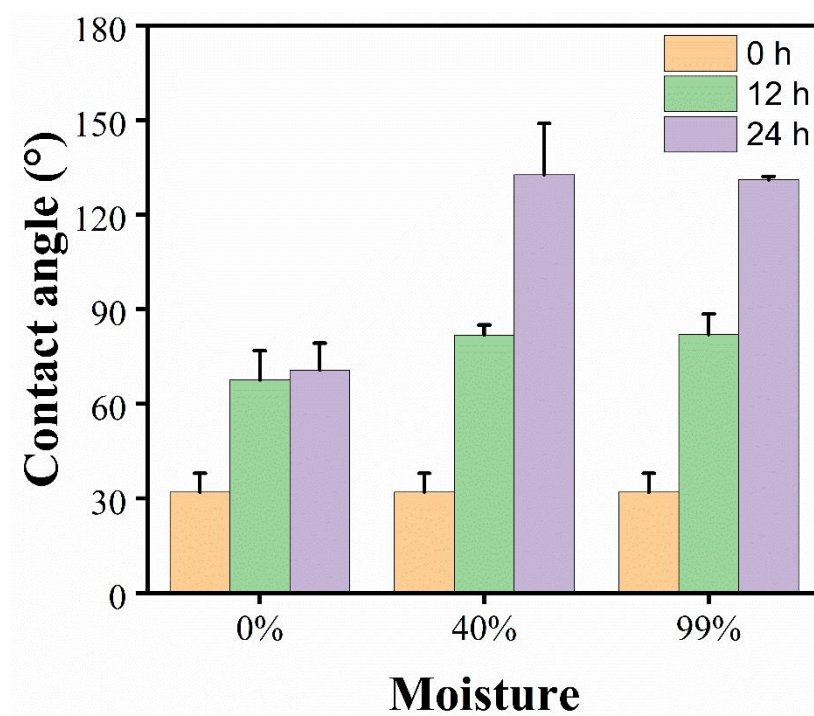


Fig. S6 Static contact angles of cotton threads storing for under varies humidity for 0, 12 and 24 hours.

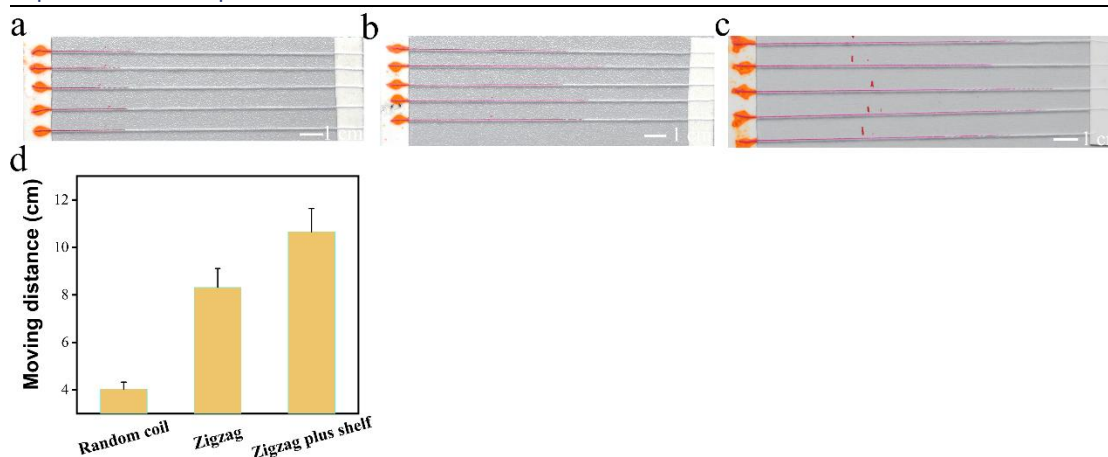


Fig. S7 Distance of the pigments-ethanol/water mixture flowing on the threads treated at different enwinding way. (a) randomly coiled. (b) zigzag pattern. (c) zigzag plus shelf. (d) Moving distance of mixed solution under different enwinding ways.

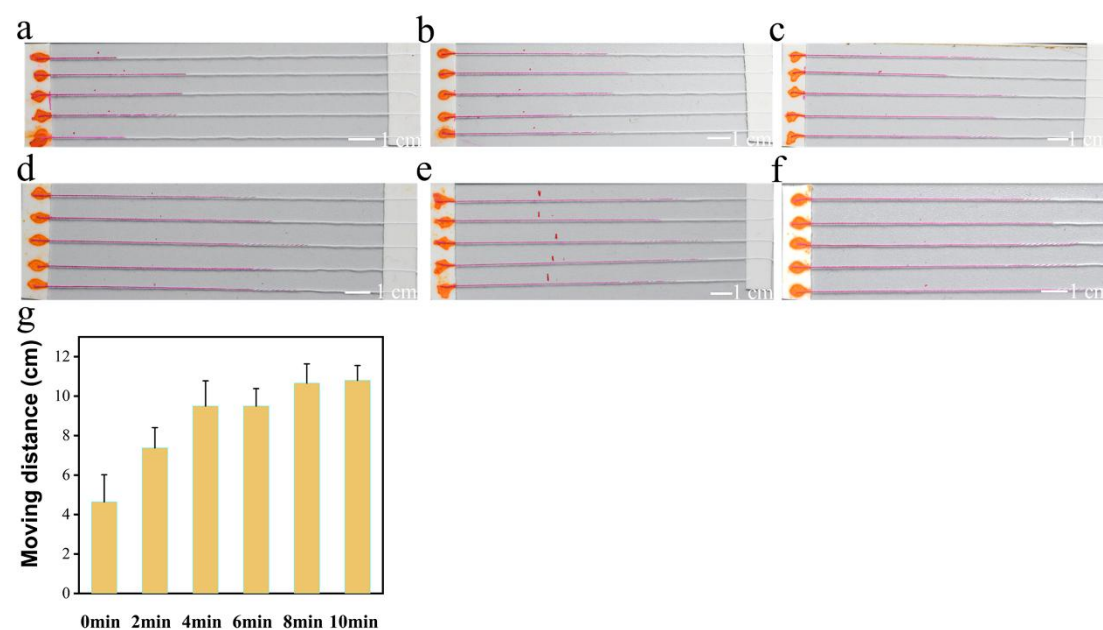


Fig. S8 Distance of the pigments-ethanol/water mixture flowing on the threads treated with different duration. (a) 0 min. (b) 2 min. (c) 4 min. (d) 6 min. (e) 8 min. (f) 10 min. (g) Moving distance of mixed solution against plasma-treatment duration.

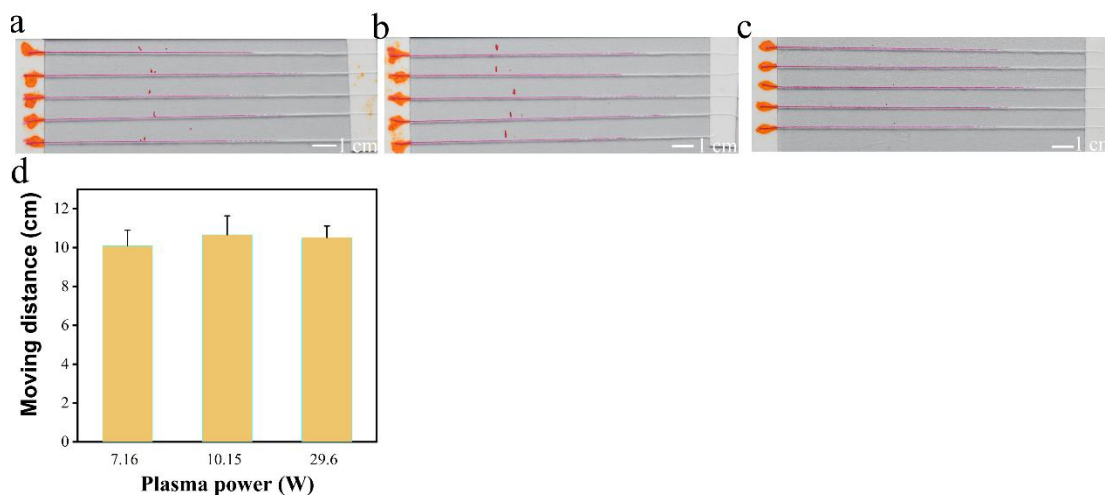


Fig. S9 Distance of the pigments-ethanol/water mixture flowing on the threads treated with different plasma power. (a) 7.16W. (b) 10.15W. (c) 29.60W. (d) Moving distance of mixed solution against plasma power.

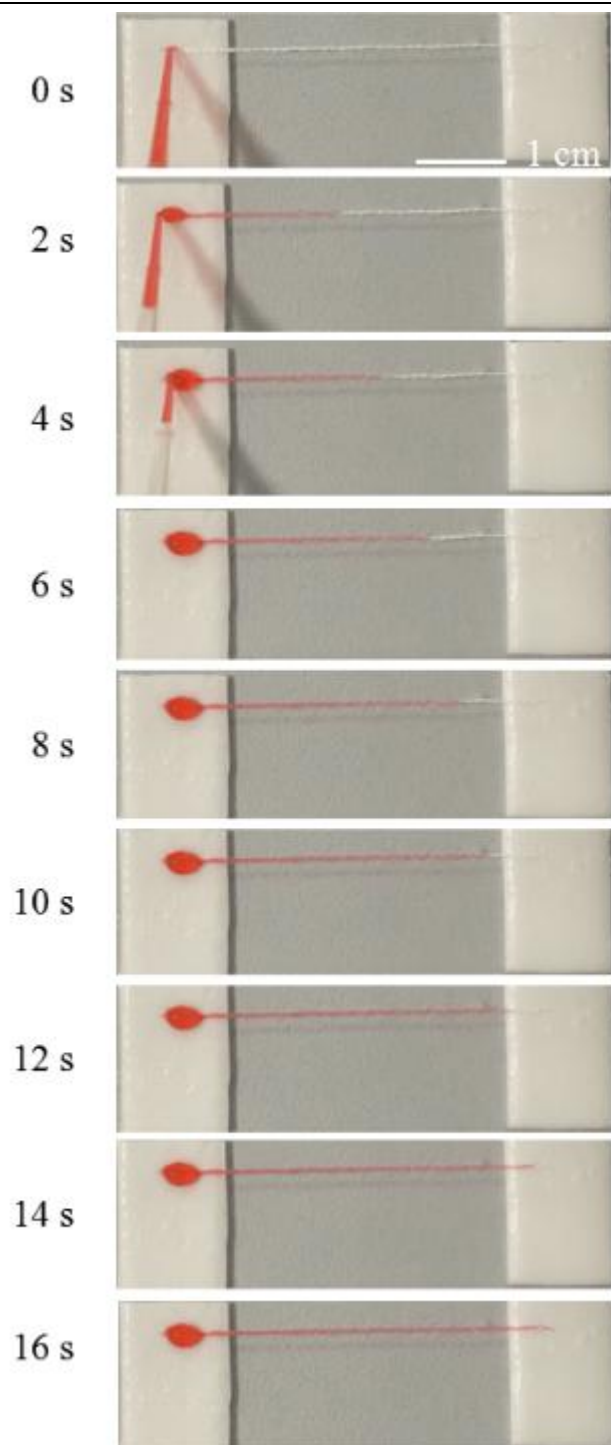


Fig. S10 Liquid flowing process along a 4-cm hydrophilic thread.