Black phosphorus/silk fibroin films hamper filamentous and invasive growth of *Candida albicans*

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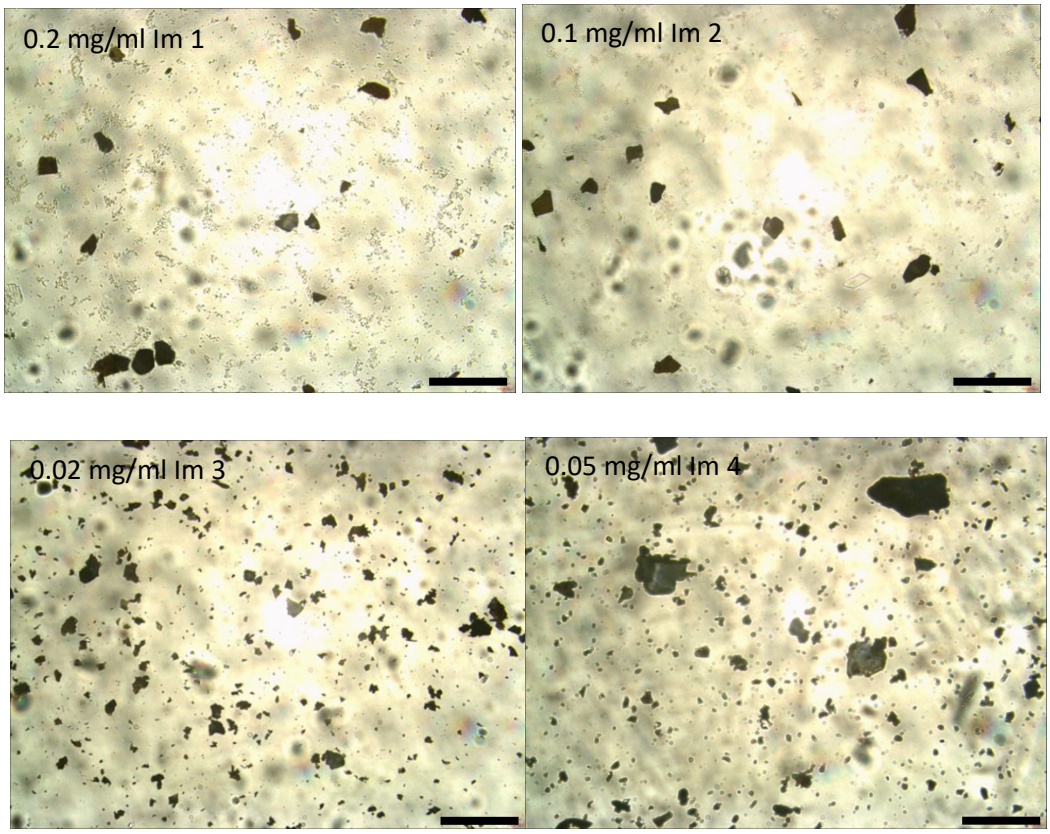
The flake dimension analysis was performed by ImageJ on optical images of the different (n=4) SF/BP solutions in PBS. Briefly, the region growing segmentation method was used by manually selecting the seeds on the images through the “Set Level” plugin. This allows us to obtain a binary image, where the flasks were set as the objects of interest, Then, the analyze particle tool was used to measure the dimensions of the flasks. Finally, the equivalent diameter of each flask was calculated as (4* flask area)/flask perimeter.



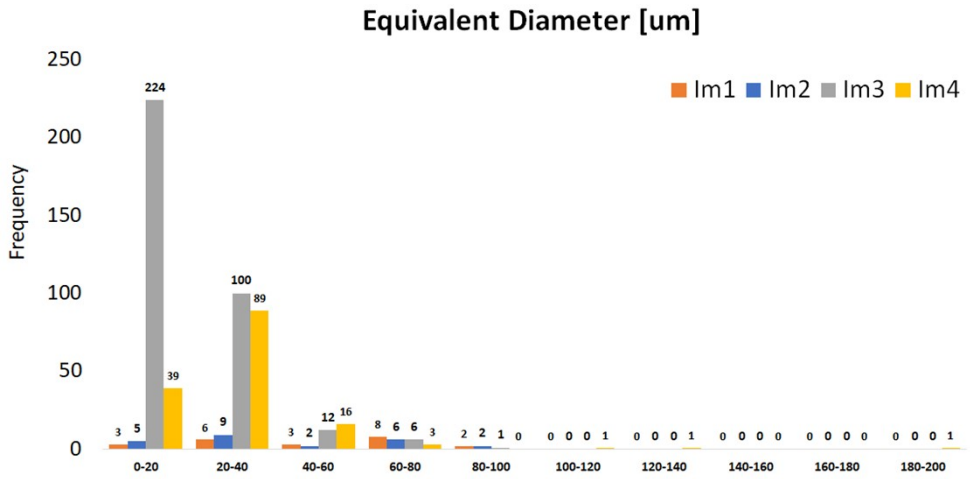


Fig. S1 Optical images of SF/BP in PBS (scale bars indicate 200 μm) and size distributions in terms of equivalent diameters of the flakes from the optical measurements.

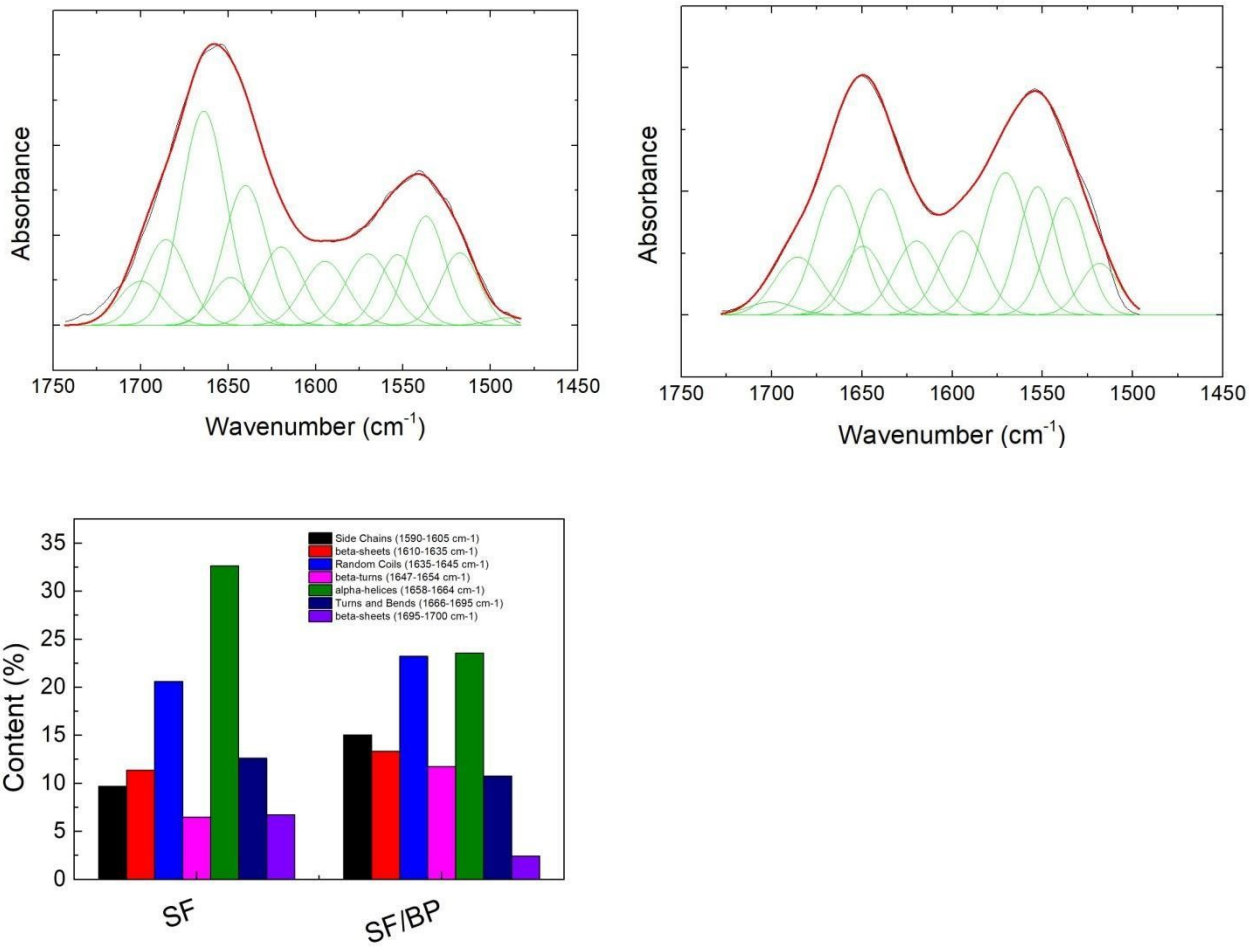


Fig. S2 Curve-fitting procedure of ATR-FTIR spectra of SF[22] and SF/BP films.

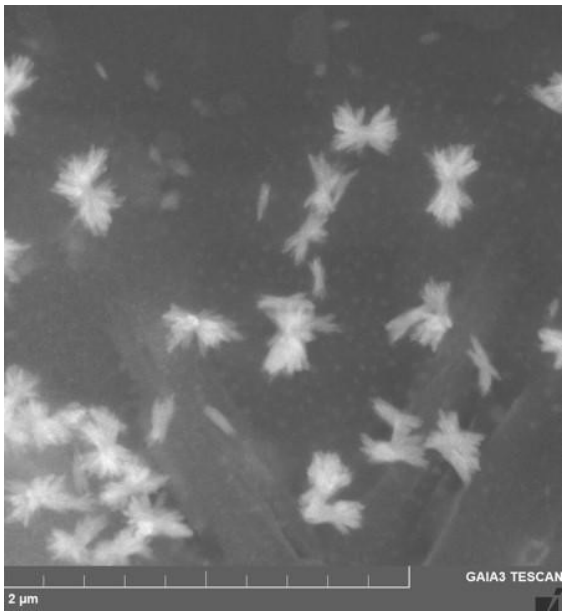
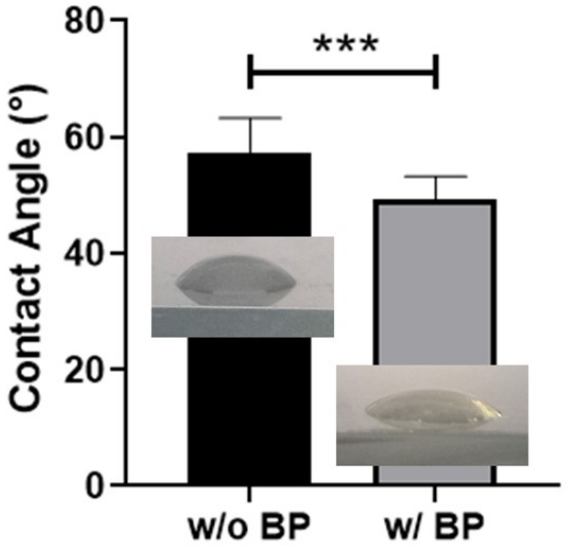


Fig. S3 STEM bright field images of SF film obtained from pristine FA.



Contact Angle (°)	
w/o BP	w/ BP
57.9 ± 5.6	49.4 ± 3.8

Fig. S4 Contact angle measurements of SF and SF/BP solutions on FTO substrates

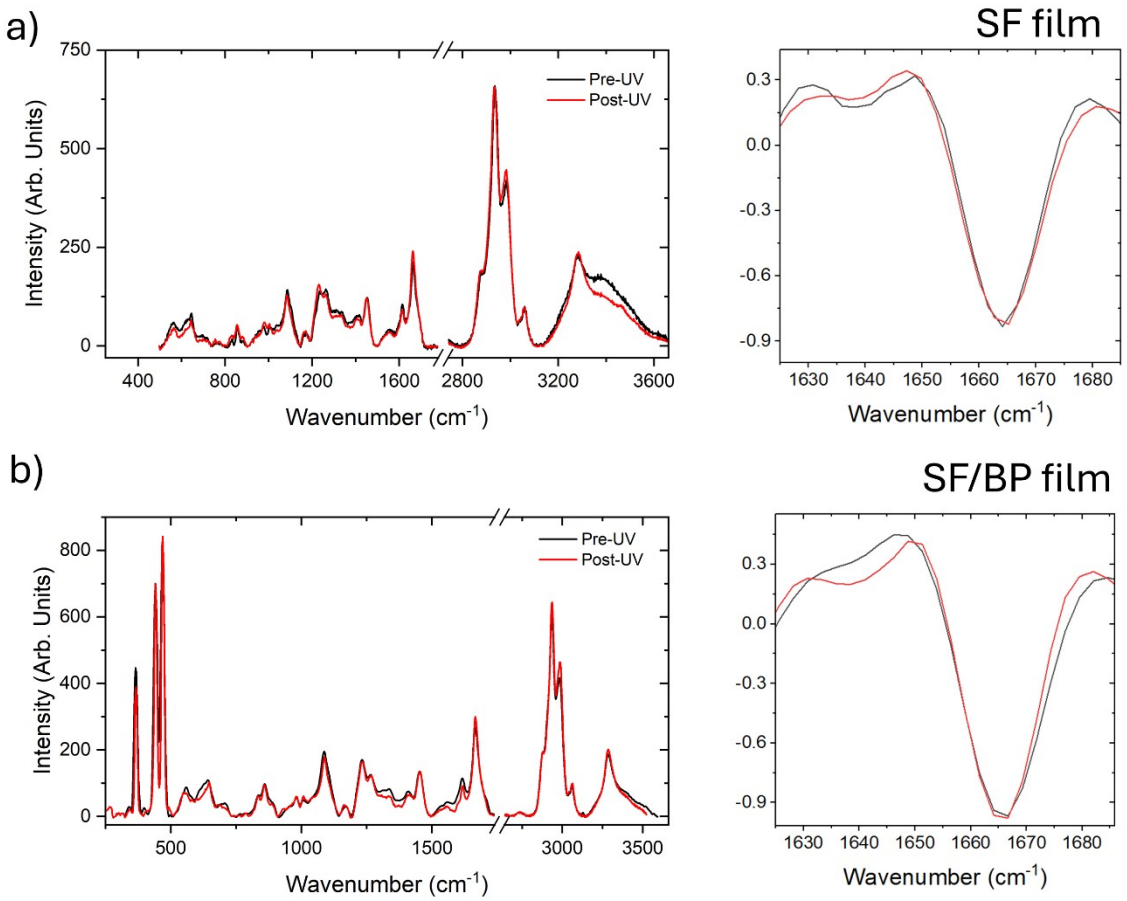


Fig. S5 Raman spectra of SF and SF/BP before and after sterilization via UV irradiation.

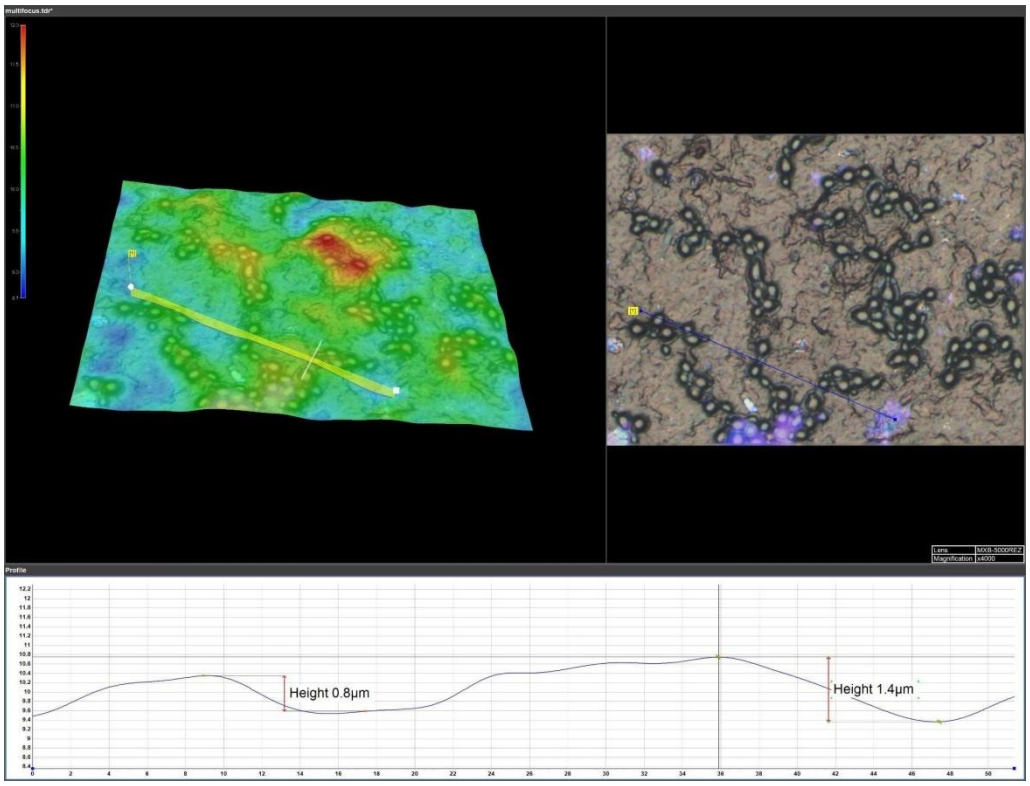


Fig. S6 Profilometry of cells on SF obtained using a high resolution HIROX HRX-01 digital microscope (Magnification x4000).

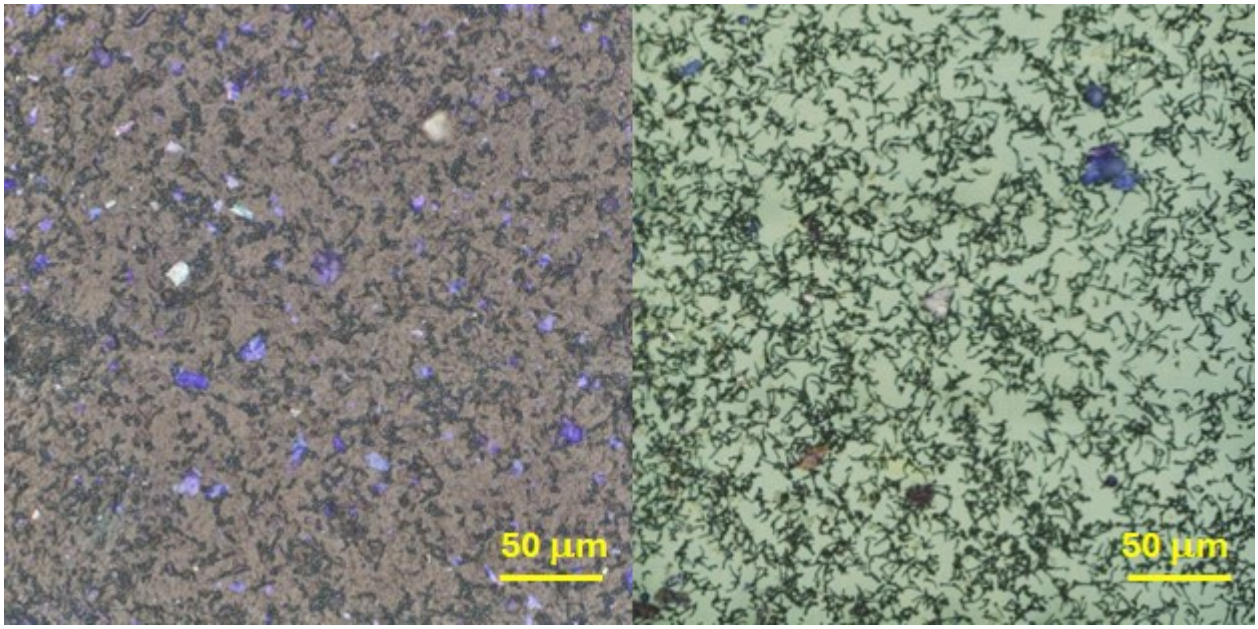


Fig. S7 Microscope-image-stitching of cells on (a) SF and on (b) FTO obtained using a high resolution HIROX HRX-01 digital microscope.

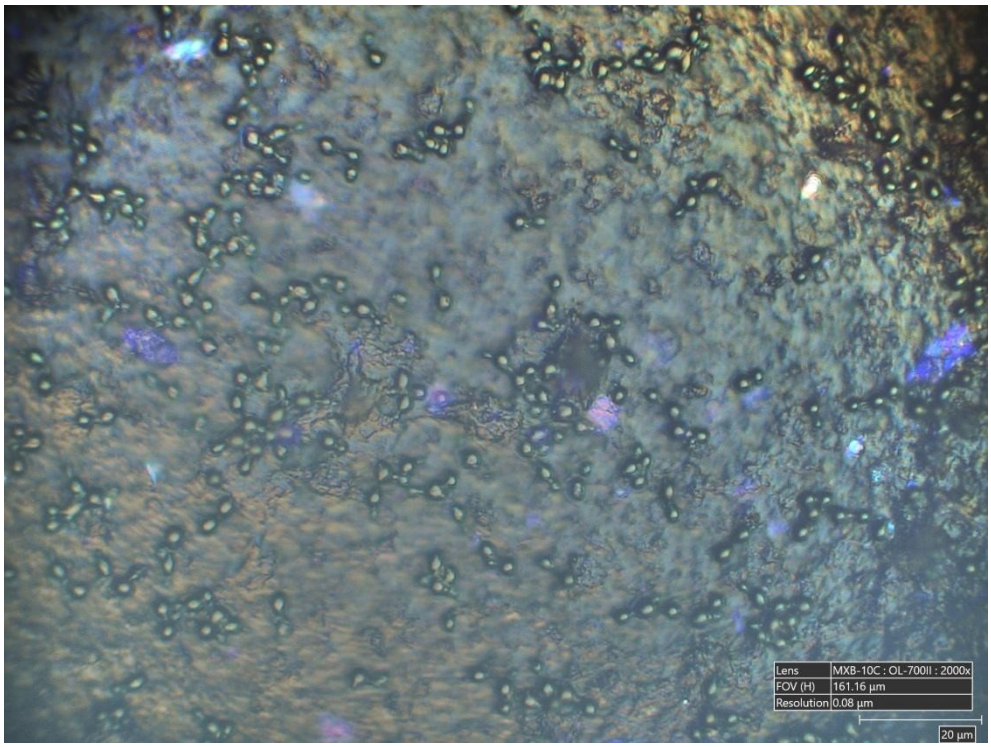


Fig. S8 High resolution image of cells on SF obtained using a high resolution HIROX HRX-01 digital microscope in a differential interference contrast (DIC) configuration.

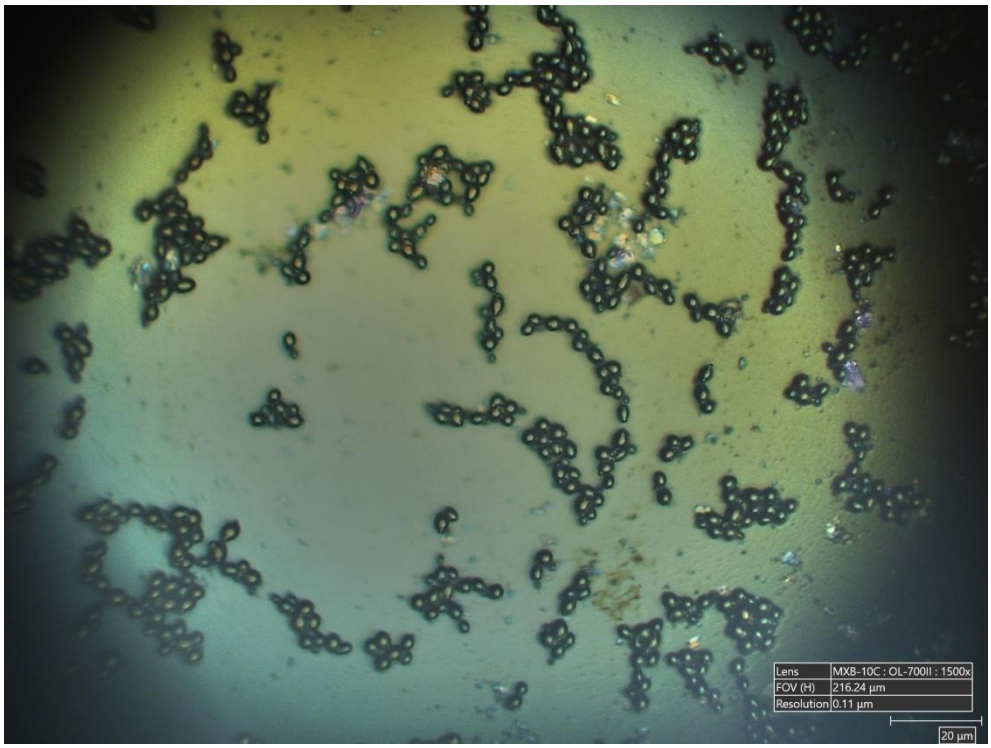


Fig. S9 High resolution image of cells on the external side of the SF/BP substrate obtained using a high resolution HIROX HRX-01 digital microscope in a differential interference contrast (DIC) configuration.

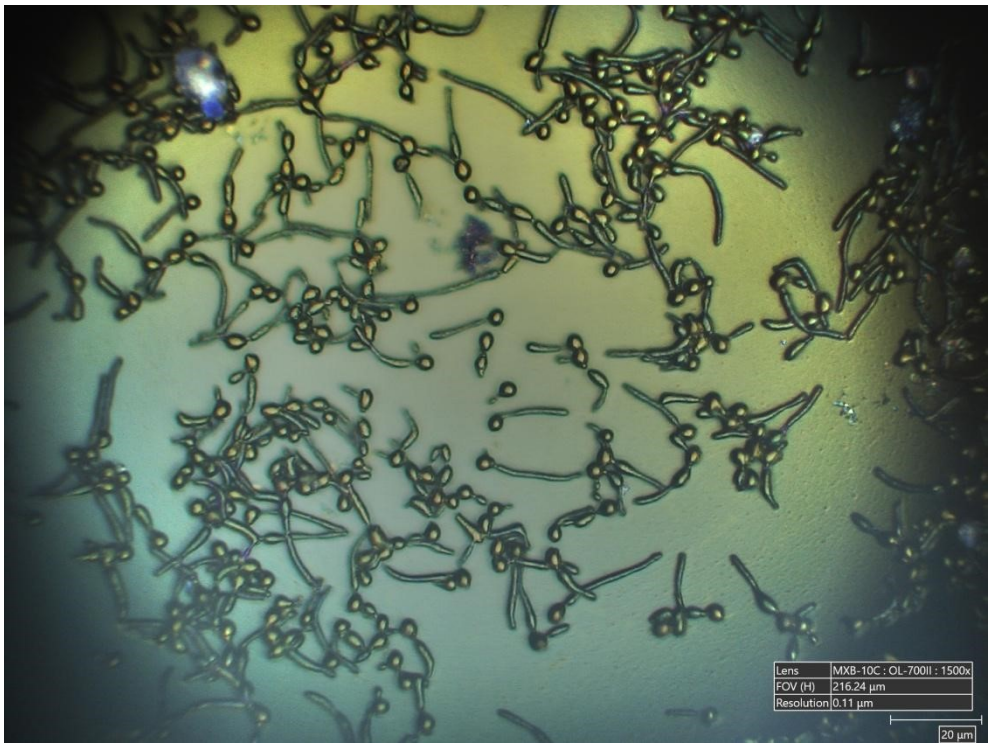


Fig. S10 High resolution image of cells on FTO obtained using a high resolution HIROX HRX-01 digital microscope in a differential interference contrast (DIC) configuration.

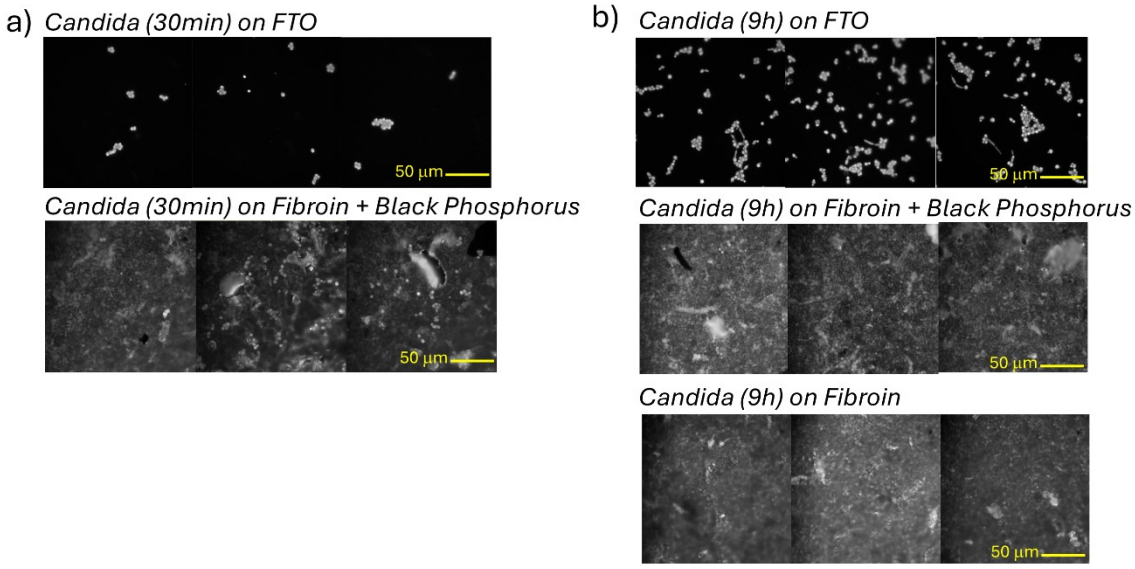


Fig. S11 Fluorescence images of cells on SF and SF/BP films after the crystal violet staining at 30 minutes and 9 hrs.