life

Article

Super-Earths, MDwarfs, and Photosynthetic Organisms: Habitability in the Lab

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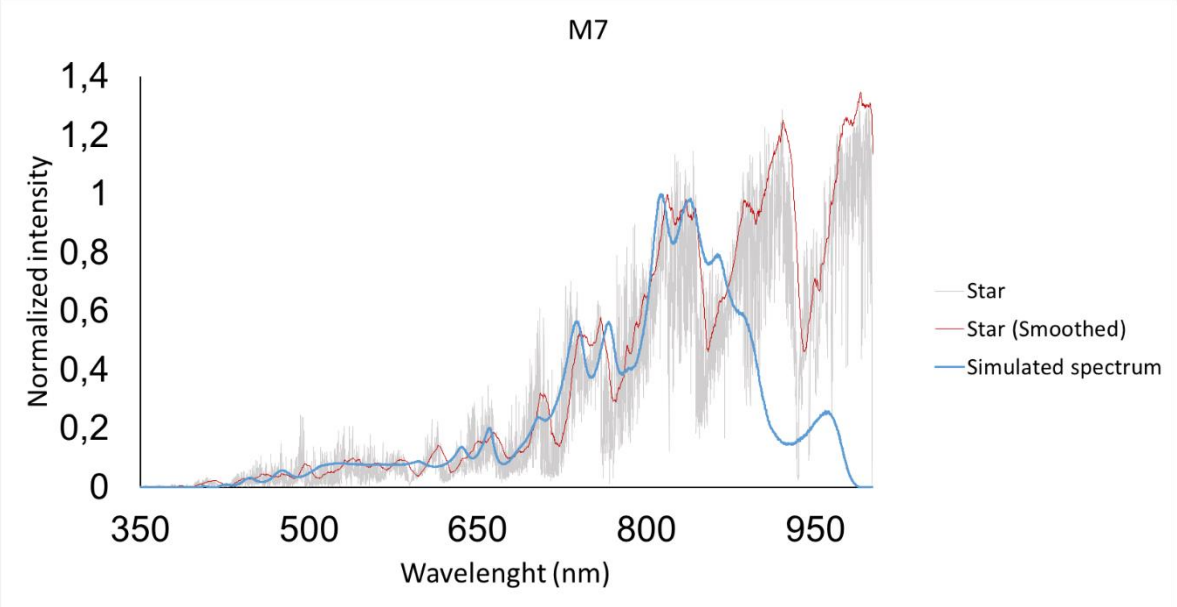

Figure S1. M7 V star input spectrum as it appears before (in light gray), and after (in red) the smoothing process. The emitted spectrum (in blue) is superimposed. The smoothing process reduces the resolution of the input spectra. Hence, the stellar simulator is able to better reproduce the input spectrum following the depletion of flux due to large atomic absorptions or molecular bands.

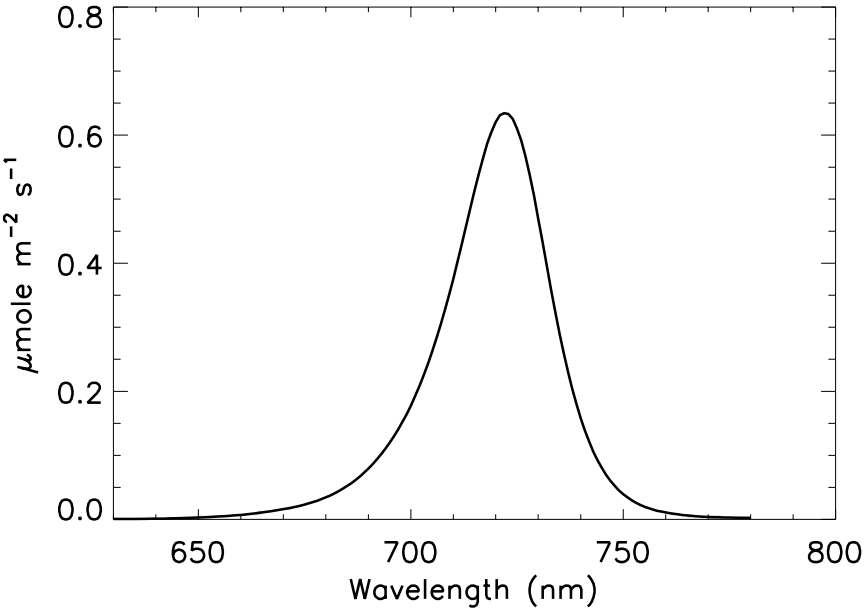

Figure S2. Emitted FR light measured by the FLAME VIS-NIR spectrograph. The central wavelength is 720\ nm and the full width at zero level is 130 nm with a wavelength range 650 nm and 780 nm. The luminosity of this lamp is 2.3 µmole m^{-2} s^{-1} in the PAR and 20µmole m^{-2} s^{-1} in the total working range.

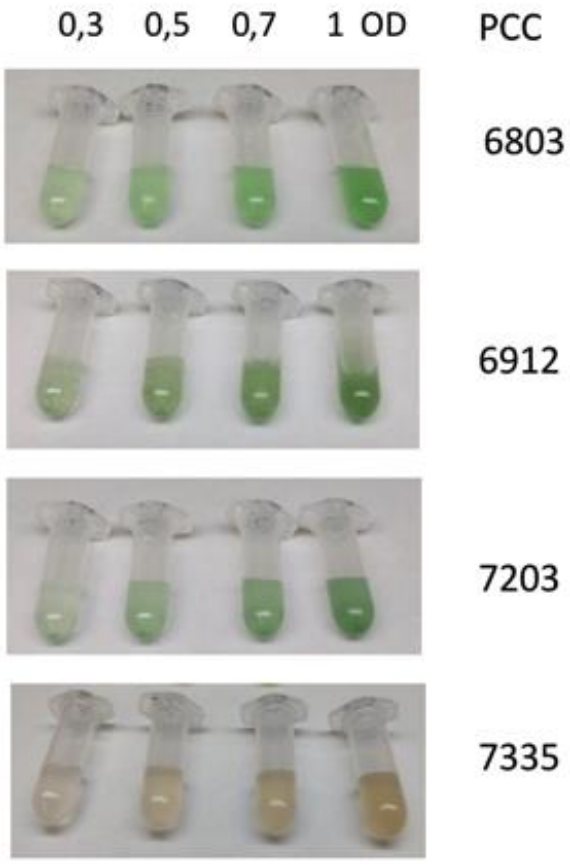

Figure S3. Different cultures of the selected cyanobacteria with different optical density, before the 20 µl spots were deposited on the Petri's plate.

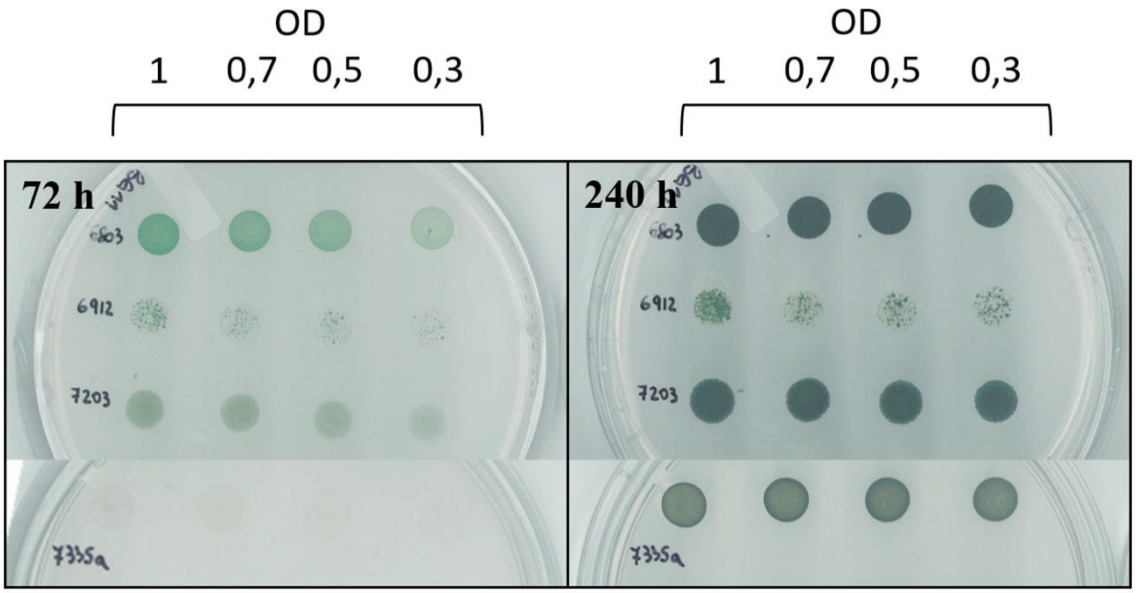

Figure S4. Examples of a BG-11 agar plate with S. sp. PCC6803, *C. fritschii* PCC6912 and *C. thermalis* PCC 7203 spots and a BG-11-ASN III agar plate with S. sp. PCC7335. Plates are shown after 72 and 240 h of exposure under the M-dwarf simulated spectrum.

Table S1. Averaged values (n=6) of the F_0 incremental ratio obtained for several organisms under different light sources. The considered error is 1 σ.

Light Source	PCC			
	6803	6912	7203	7335
SOL	11.88±2.92	2.00±0.56	9.24±1.82	2.27±0.22
M7	13.37±4.20	1.82±0.41	9.27±2.69	2.62±0.31
FR	0.35±0.13	0.63±0.26	0.78±0.26	1.08±0.08