

Dark photosynthesis

anaerobic biosynthesis of food from wastewater & electricity

David Strik

Cees Buisman

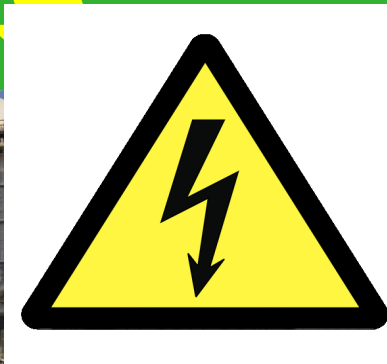
Mathijs v.d. Zwart

Ludovic Jourdin

Yi Jiun Chu

Math Lambalk

Javier Reynoso Lobo

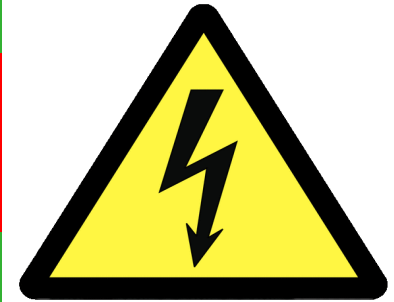
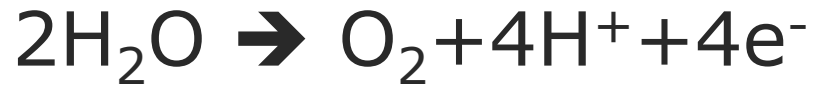
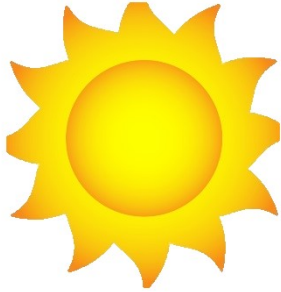


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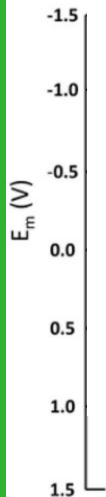


100years
1918 — 2018

Anaerobic biosynthesis of food from wastewater & electricity

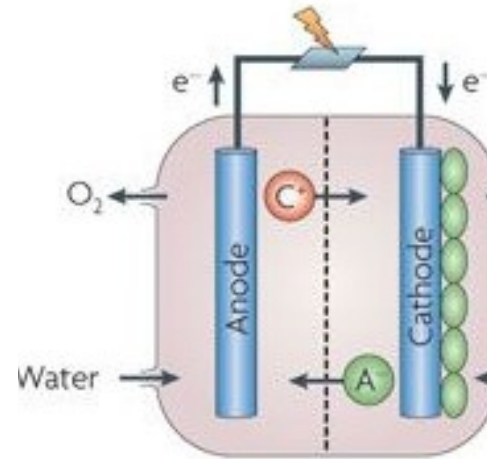


Plants and cyanobacteria



photosystem II

doi: 10.1149/2.0651410jes



doi: 10.1038/nrmicro2422

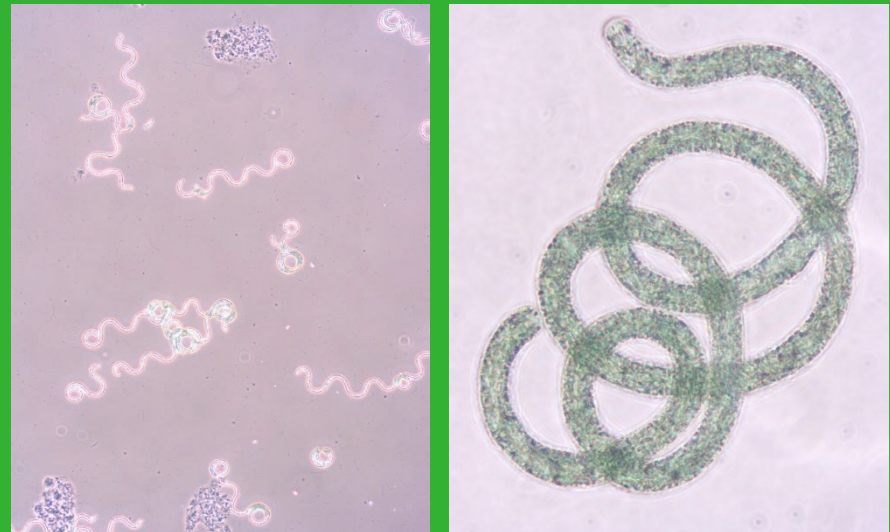
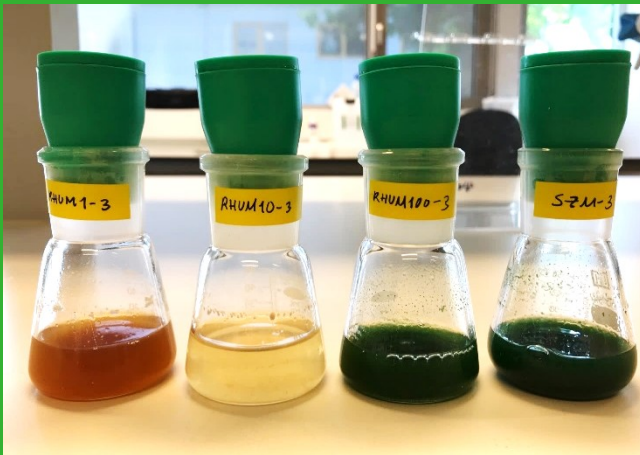
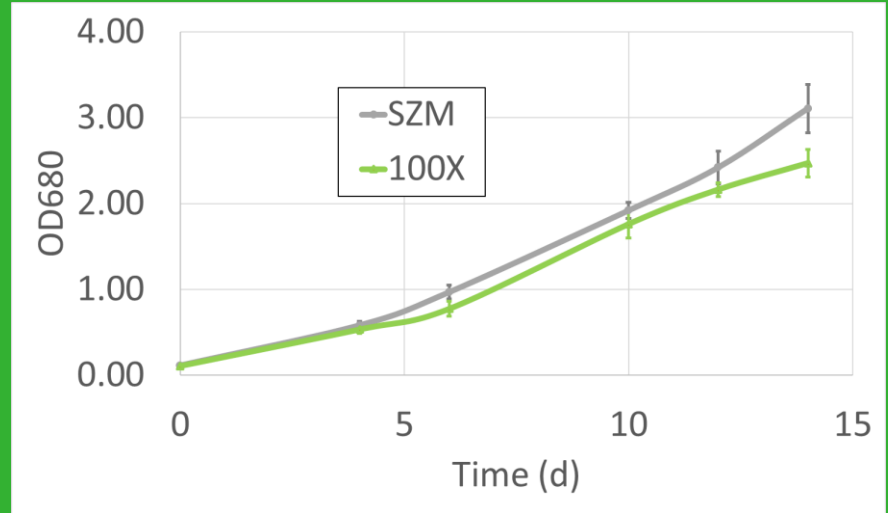


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100years
1918 — 2018

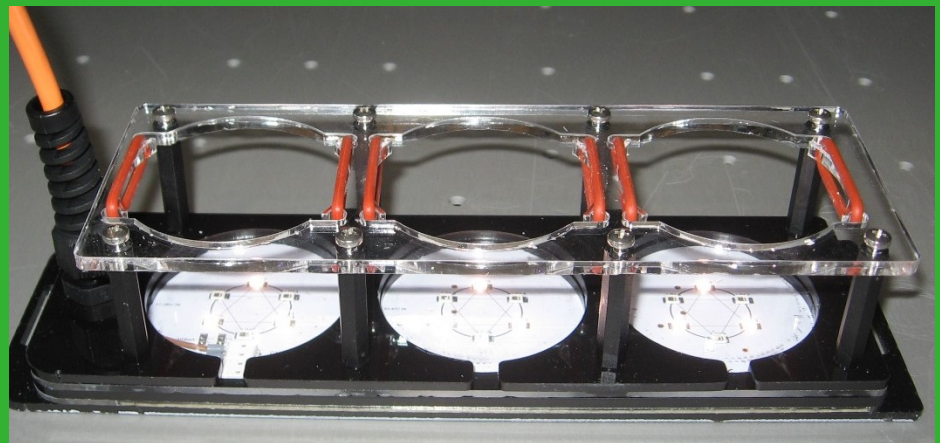
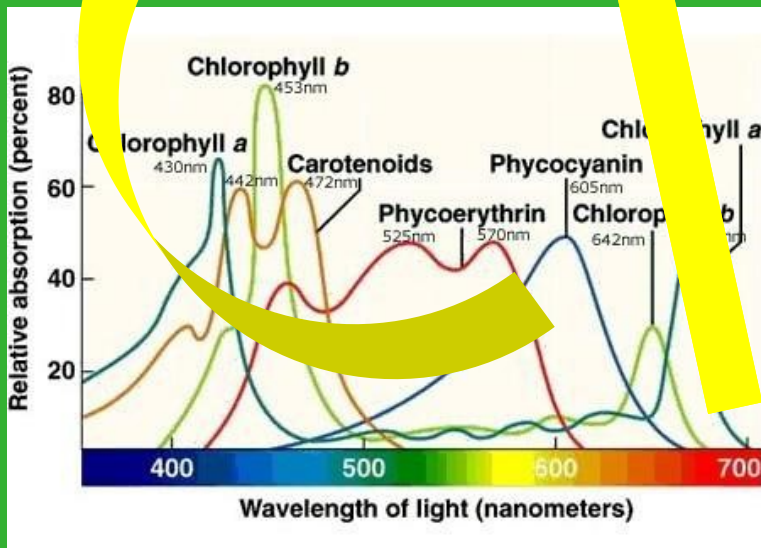
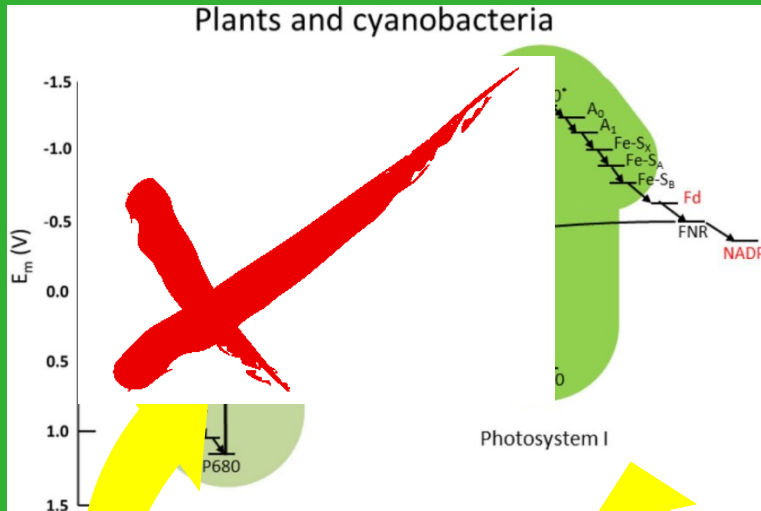
Growth 100x diluted fresh urine in light



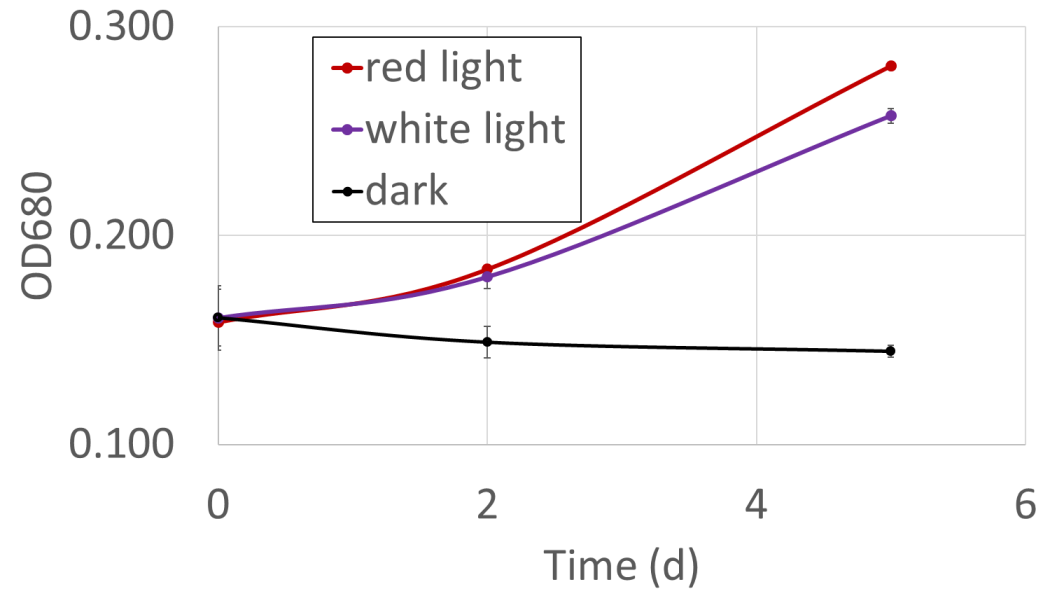
No growth on electricity in darkness



Growth in minimum light?

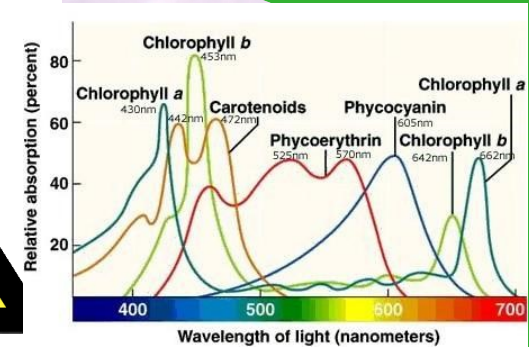
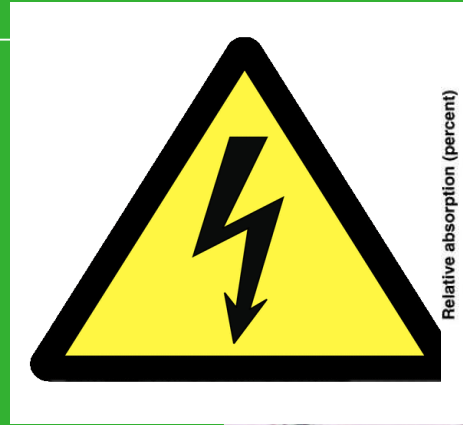


Growth in far red light spectrum



Dark Photosynthesis – work in progress

Lettinga Award 2017



BIOTHANE
by **VEOLIA**
Water Technologies



PAQUES
Leading in biological wastewater
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Poster: Dark photosynthesis: explorations on bioelectrochemical growth of photosynthetic food grade microorganisms on wastewater

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