

A cover for high ranked academic and scientific journal which concerns about academic research in the field of alternative energy and environment protection. The journal name is "Energy and Environmental Science".

We are looking for a cover artwork which shows our high productivity economic oil production from yeast which will protect the environment and stop the deforestation.

3D and Photoshop designer are wanted to design a 3D art work photo to show our academic research

THE JOURNAL DEADLINE TO SUBMIT THE COVER ARTWORK IS 03RD JULY 2019. FOR THAT REASON, WE KINDLY ASK YOU TO SUBMIT YOUR PROPOSAL BY 2ND - 3RD JULY THAT WE CAN SUGGEST SOME OPTIMIZATION OR CORRECTIONS. THUS, WE CAN MEET THE JOURNAL DEADLINE.

The needed cover artwork should be in alignment of the guideline of the journal. This image might be used as front cover or back cover of the journal. the journal editors will choose whether the image can be used as front or back cover. Therefore, any design should be submitted in the two sizes. First size should fit to front cover. The second size should fit to back cover.

All suggested cover artwork should be full color background, with 3D effect, all elements are drawn (no real photos) and no writing inside the image.

The wanted art work must include the following:

- 1- 3D model of yeast shows the inside lipid droplets with other cell compartments (such as nuclear, mitochondria...). The outer shape of the yeast should be oval as Figure 1. The inside is 3D model similar to Figures (3 or 5). The yeast should be as following:
 - a. A transparent yeast (as figure 2) with one lipid droplet inside (one big drop like figure 5) and other yeast cell compartments (such as nuclear, mitochondria...), or
 - b. A transparent yeast with big 2-3 lipid spots (such as figure 4) with yeast cell compartments (such as nuclear, mitochondria...).

In both possible models (a or b) the focus should be on the lipid droplet. The other cell compartments are for colored decoration. Number of yeast cells in the artwork is up to designer creativity.
- 2- 3D Glucose molecule should be around the yeast
- 3- 3D Acetic acid molecule should be around the yeast
- 4- 3D model for deforestation (we need to simulate that oil production from yeast will stop the deforestation) I am not sure how!!! we are open for designer creativity. (This might be in background, might just be 2D). The most known example for the deforestation is what is happening for the rainforest in Indonesia and Malaysia.

It can contain also (not compulsory)

- 1- deforesting concept
- 2- biofuel energy
- 3- low cost and waste free

Wanted outcomes:

The designer should give 3-6 view of each 3D element as separate png pic with art work.

The photo should be again in high quality and high resolution. (please see guidelines below)

Designer should deliver work as png jpeg pdf and source files with full layers we prefer as vector files and psd

- Any artwork should be submitted in two sizes to give the option to the editors to choose.
- Guidelines are below please see and commit to
- Any designs which not meet the Guideline will be excluded
- More previous artwork from the same journal can be find under the website of the journal (see links below)
- More information about yeast or our article is presented in the appendix.

<https://pubs.rsc.org/en/journals/journalissues/ee#!issueid=ee012006&type=current&issnprint=1754-5692>

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For more information about yeast modeling please see: (<https://pin.it/ueksfsl4tzi6ez>) and (<https://pin.it/2udzwpyho6qrqt>).



Figure 1: The yeast

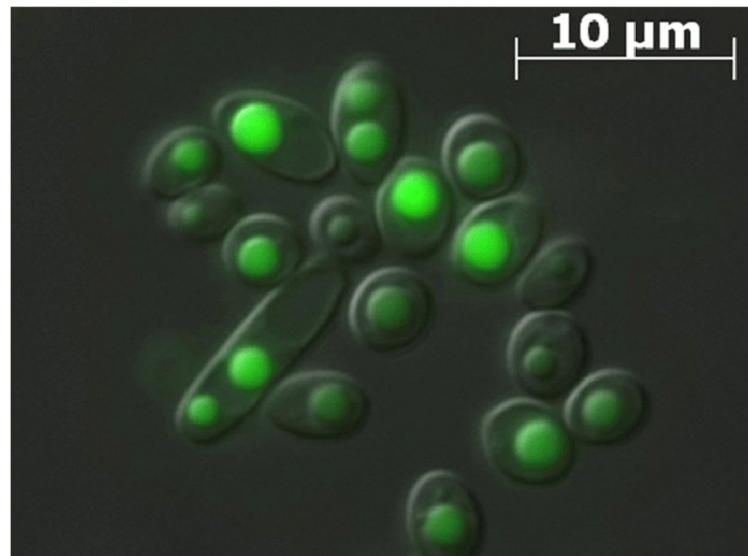


Figure 2: The yeast containing lipid droplets. The lipid droplets are colored in green to just to be clear.

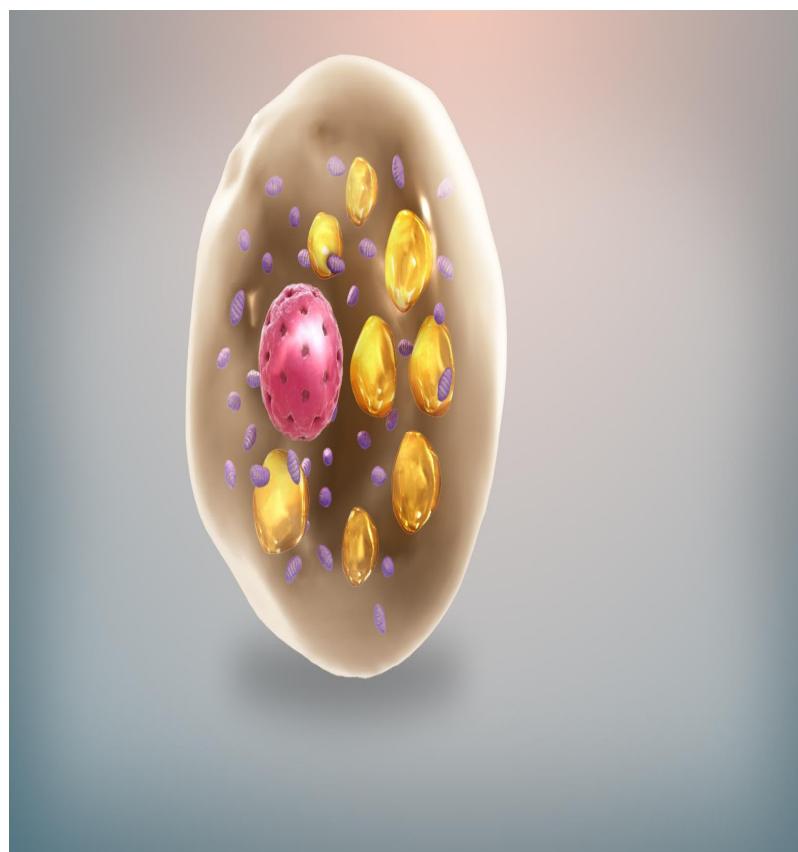


Figure 3: 3D model of cell contains many lipid droplets (in Yellow). with the other cell parts such as nuclear (rose) and mitochondria (Purple/ lilac).

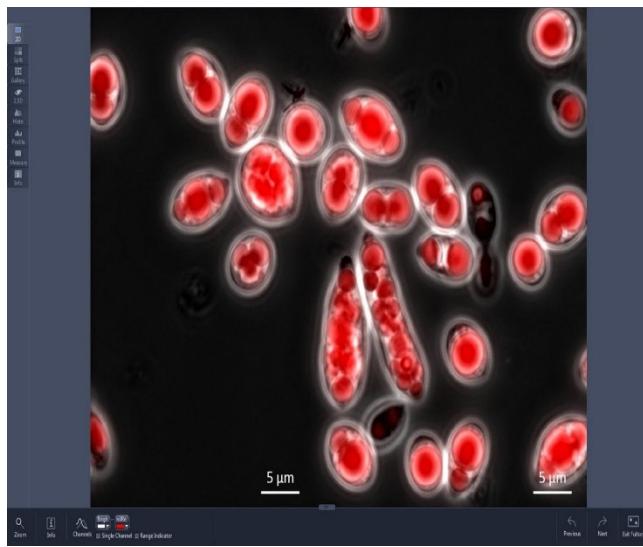


Figure 4: yeast containing lipid droplets. The lipid droplets are colored in red to just to be clear.

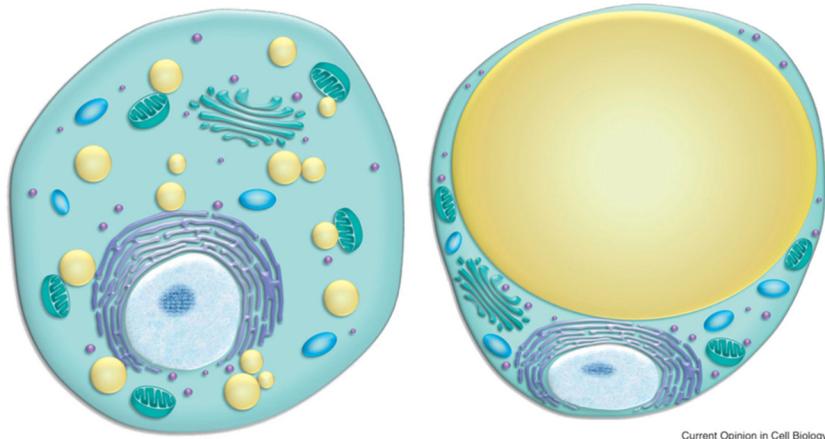


Figure 5: On the left cell with low lipid content. On the right a cell with very high lipid content.



Figure 6: the outer shape of our yeast

Image requirements for front cover:

- Image requirement - sample covers below
- Image Size: 215 mm wide x 159 mm high (2539 pixels wide x 1878 pixels high)
- Image Resolution: Must be 300 dpi or greater at final size
- Image File type: pdf, jpg, eps, tif and psd - also layered files as tif and psd files.
- Please note that we no longer accept any other file formats.
- It is the author's responsibility to obtain permission to reproduce any photographs/image(s) produced by a third party.



An effective Cover Image

Colourful background (photographs work very well), minimal text (or no text), good margins of background around the main image prevent loss of important detail(s).

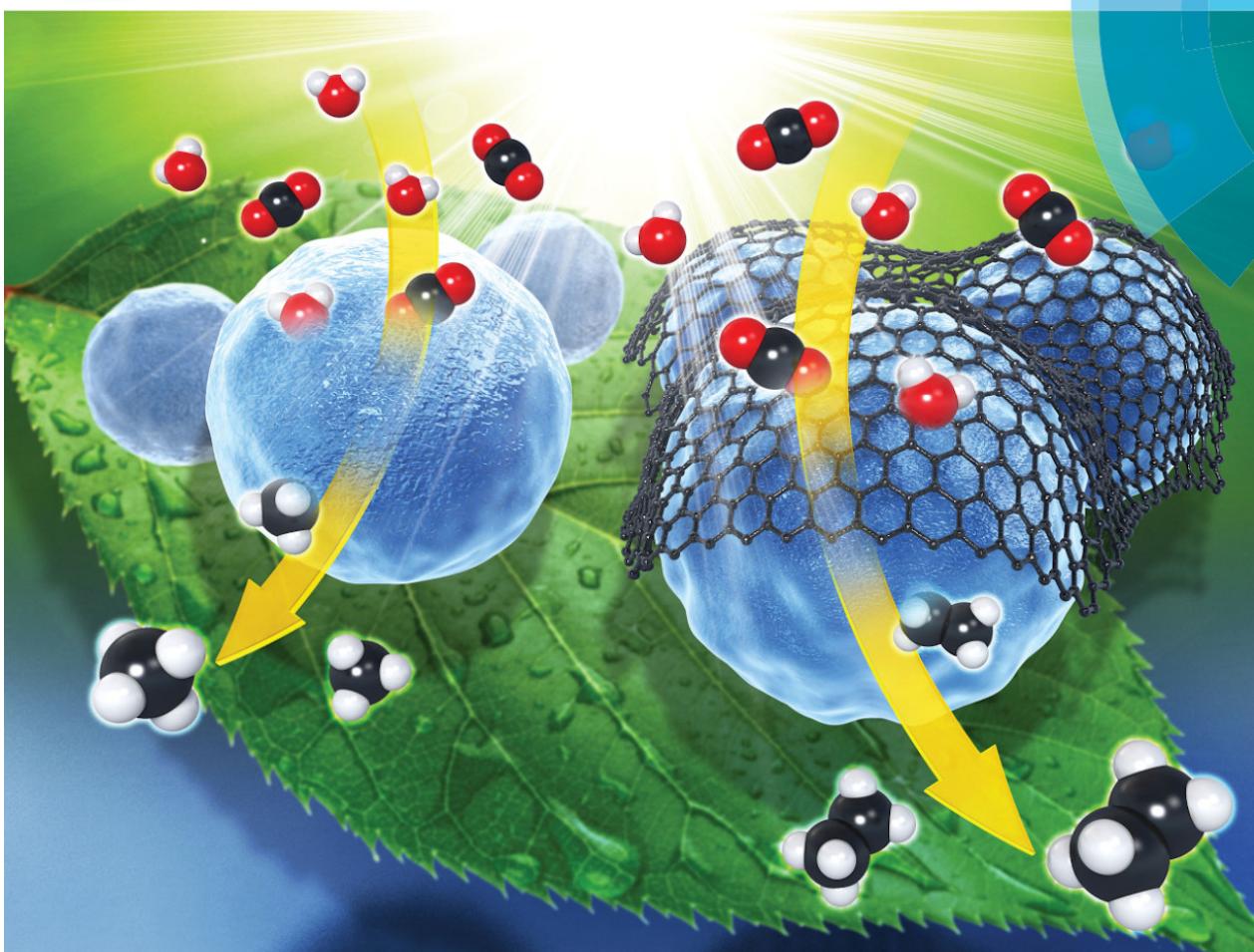


An ineffective Cover Image

Graphs rarely work well, too busy, too much detail, white background, main details too close to edges so may be cropped

Energy & Environmental Science

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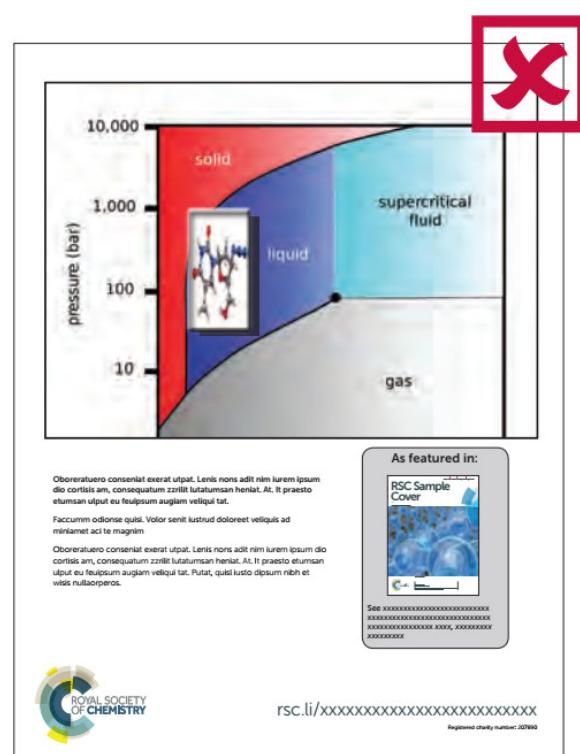
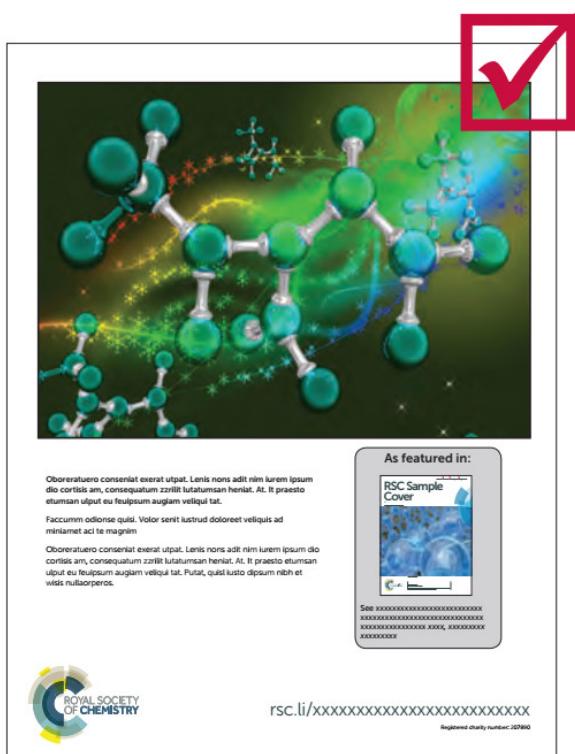


PAPER
Su-Il In *et al.*

High-rate solar-light photoconversion of CO₂ to fuel: controllable transformation from C₁ to C₂ products

Image requirement for Back Cover:

- Image Size: 188 mm wide x 136 mm high (2220 pixels wide x 1606 pixels high)
- Image Resolution: Must be 300 dpi or greater at final size
- Image File type: pdf, jpg, eps, tif and psd - also layered files as tif and psd files.
- Please note that we no longer accept any other file formats.
- It is the author's responsibility to obtain permission to reproduce any photographs/image(s) produced by a third party.

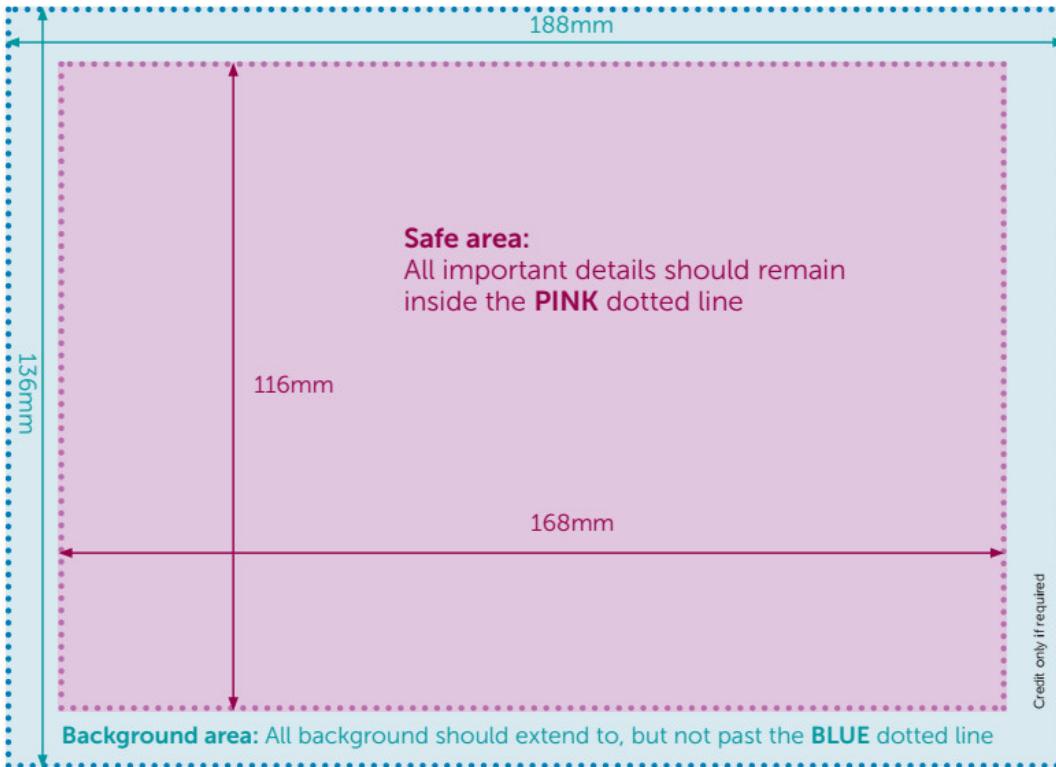


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As featured in:



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Appendix

What is the environmental problem of deforestation?

The biofuels (such biodiesel) have been suggested as alternative to fossil fuel. The biofuels are made from plant oil (such as palm oil sun flower oil....). However, the usage of plant oil for biofuel applications lead to increase the demand for these oils. Countries in Brazil, Southeast Asia, and the United States start to convert rainforests, peatlands, savannas, or grasslands to produce food crop-based oil to meet the high demand. Converting the land is a dangerous behavior and has extreme negative impact on the environment.

The first impact, that converting land release a massive amount of CO₂ equal to 420 times more than the annual CO₂ produced from fossil fuels. Then the biofuel become more dangerous to the environment more than the fossil fuels themselves.

The second impact is destroying the environment biodiversity. One of the most prominent examples is the clearing of tropical rainforests for palm oil cultivation, which leads to the ultimate displacement and decline of critically endangered species, such as the orangutan.

what is the yeast?

The yeast a single cell microorganism looks like the bacteria but yeasts have bigger cell (Figure 1). Under certain conditions, the yeast start to store the lipid (oil) inside the cell within oil droplets (Figure 2) [exactly become like fat human been]. The yeast can contain one lipid (oil) droplet or many droplets. (Figure 3). When the yeast has high oil storage, the lipid droplets become bigger and bigger and Occupying the whole cell (Figure 4). When the cell has very high lipid content the lipid droplets become one big lipid droplet (Figure 5). In fact, we are looking to have this much of lipid content and we succeed to have very high lipid (oil) content exceed what previous work achieved. However, figures 1-5 showed different shape of the yeasts. The correct outer shape of the yeast is oval as shown in figure 6 or figure 1.

For more information about yeast modeling please see: (<https://pin.it/ueksfs14tzi6ez>) and (<https://pin.it/2udzwpyho6qrqt>).

How the yeast produce oil (lipids)?

Yeast produces lipid by a fermentative method. Exactly like the BEER production. Beer yeast use a feedstock (carbon source, like sugar) to produce beer (ethanol). Our yeast use also feedstock (carbon source, in our process we used mix of glucose and acetic acid) to produce oil (instead of ethanol). Another different, normal beer yeast releases the ethanol to the media (outside the cell). But our yeast stores the lipid inside the cell. Therefore, after the fermentation we have to break the cells (high pressure homogenizer) then we extract the lipid with organic solvent.

Problems:

- yeast produce lower amount of lipid.
- Breaking the cell with high pressure homogenizer consume a lot of energy then high cost.

- organic solvents are toxic to environmental
- With such process the cost of the lipid is high

Many papers work on produce the oil from the yeasts as alternative plat form to plant to avoid the negative impact however, pervious work show relativity low lipid productivity and they use toxic organic solvent to extract the lipid. Uwe call this process is the classical process. Producing oil with classical yeast oil results in a very high expensive oil price (about 5. Dollar per kg) which can NOT compete with palm oil (0.5 dollar per kg). Therefore, the industry still using palm oil.

How we solve this problem in our work?

We present a complete process for produce the oil from the yeast in very high productivity. In general, the yeast need feedstock to convert it into oil.

- One of our unique process parameter is the using of a mixture of Acetic acid and Glucose to produce high lipid amount in very short time. (This what it means high productivity).
- We invent a new method for lipid extracting without the need for any toxic organic solvent. For first time: our extraction method is depending on using of the enzymatic hydrolysis to implement a solvent free extraction method.
- We succeed in this work to recycle water other side products to avoid any waste our process is waste free
- This high productivity and new method for lipid extraction and recycling of side-products make the cost of the lipid about one dollar per kg (very close to plant oil costs).