



THIRD GENERATION BIOFUEL FROM DIATOMS

Saranya G^{1,2}, Joshi N V² and Ramachandra T V^{1,2}.

¹Center for Sustainable Technology, ²Energy and Wetlands Research Group, Centre for Ecological Sciences, Indian Institute of Science, Bangalore 560012, URL: <http://ces.iisc.ernet.in/energy>, email: cestvr@ces.iisc.ernet.in



DIATOMS

- Diatoms are a major group of microalgae that belongs to the class “Bacillariophyceae”.
- There are two classes of diatoms – Pennate (benthic) forms and Centric (planktonic) forms.
- These diatoms when starved of nutrients like nitrates or silica, store the energy produced by photosynthesis as lipids.
- These lipids are similar to vegetable oils which could be used as biodiesel feedstock
- Hence diatoms are considered as a potential biodiesel precursors.



Diatom	Lipid content (% dry wt)
<i>Nitzschia sp.</i>	45–47
<i>Nitzschia dissipata</i>	28–46
<i>Navicula pellucosa</i>	27–45
<i>Isochrysis sp.</i>	25–33
<i>Thalassiosira weissflogii</i>	22–24
<i>Phaeodactylum tricornutum</i>	20–30
<i>Cylindrotheca sp.</i>	16–37
<i>Skeletonema costatum</i>	16–35
<i>Thalassiosira pseudonana</i>	16–26

Biodiesel Production Schematics

