

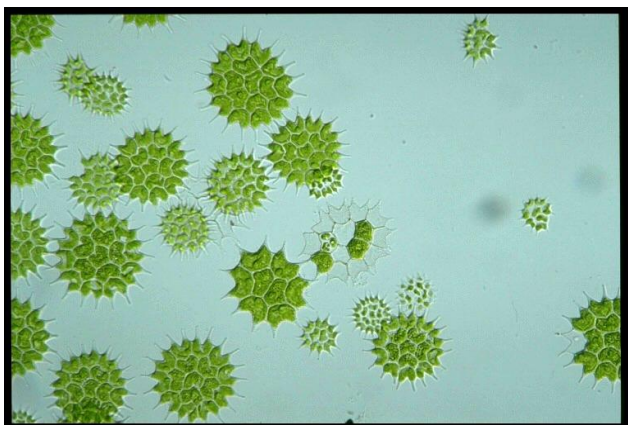
[Research](#)
[Technical Assistance](#)
[Publications](#)
[Events](#)
[About](#)

Green Diesel

Green diesel, or renewable diesel-grade hydrocarbons, can be produced from microalgae, waste grease, or other lipid-rich feedstocks. Green diesel consumes less fossil fuel and produces fewer greenhouse gas emissions than petroleum diesel, and is thought by some to be superior to biodiesel made from conventional fatty acid methyl esters. Unfortunately, the high moisture content of some feedstocks can require costly pretreatment and separation. Also, catalytic hydrodeoxygenation – a commercial green diesel technology – consumes a great deal of fossil-fuel derived hydrogen gas, which requires co-location with hydrogen production facilities and undermines sustainability goals of green diesel projects. Therefore, researchers are looking to develop new lipid processing routes for green diesel production.

ISTC's B.K. Sharma helped to improve the method of green diesel production. In a study led by Derek Vardon - a graduate student of the University of Illinois, the team demonstrated the potential of a catalyst (Pt-Re/C, or platinum-rhenium on carbon) and glycerol to convert saturated and unsaturated fatty acids to hydrocarbons in a process that produced hydrogen gas *in situ*, without relying on external sources. They concluded that the approach is promising for overcoming the high external demands of hydrogen gas in conventional lipid hydrotreatment processes.

Their study, **Hydrothermal catalytic processing of saturated and unsaturated fatty acids to hydrocarbons with glycerol for *in situ* hydrogen production**, was published in a 2014 issue of *Green Chemistry*.



Energy

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Meet the Scientists

- B.K. Sharma

Publications

- Hydrothermal catalytic processing of saturated and unsaturated fatty acids to hydrocarbons with glycerol for *in situ* hydrogen production



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