Amazing algae!

An introduction to the wonderful world of algae

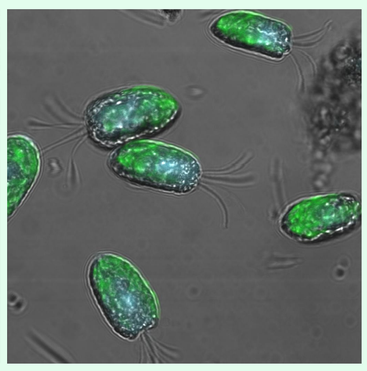
Algae

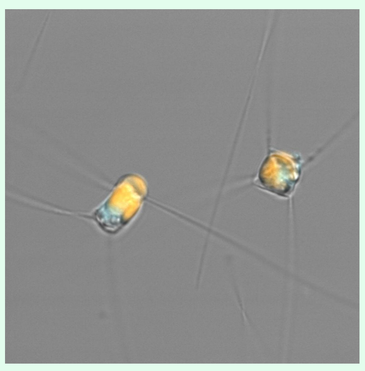
The term algae covers a wide range of diverse organisms that can be generally described as **eukaryotic protists** (a difficult group to define), that are distinct from plants but are typically photosynthetic and aquatic.

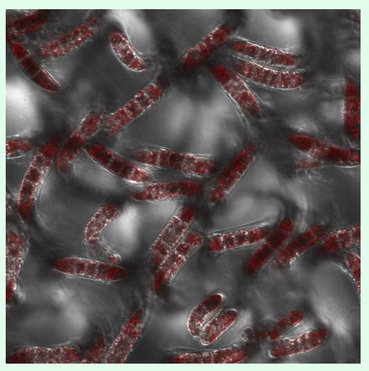
They can either be microscopic single-celled **micro**algae or larger more complex multi-cellular **macro**algae (seaweeds). They are distributed worldwide in both freshwater and marine habitats across a wide range of environments.

Like plants, the majority of algae use photosynthesis to capture light energy to convert inorganic substances into simple sugars and then other molecules.

Images courtesy of Emily Roberts (Swansea University), Maeve Edwards (National University of Ireland Galway) & Lucy Watson (BIM)





A long history of use

Seaweed was being eaten at least 1500 years ago in Japan and it remains an important food in many cultures where it is valued for its high mineral content (e.g. Nori and laverbread). Closer to home in Europe, kelp was farmed extensively from the 17th to 19th Centuries for processing into soda for the linen industry and into iodine for medicinal purposes.

Microalgae have been used for decades as a food supplement (e.g. spirulina) and as a feedstock for farmed shellfish and finfish. Compounds extracted from both microalgae and seaweed today find their way into everyday foods, cosmetics and pharmaceuticals.

Traditional seaweed harvester, County Galway, Ireland

Image courtesy of Matthew Dring (Queens University Belfast)

Exploring the power of algae

Algal products are again being commercially explored and developed with the help of a growing global industry using the latest **algal biotechnologies**. This involves the mass cultivation of micro- and macroalgae and conversion of the harvested biomass into a range of value-added products.

Meeting future clean energy needs

A big driver of algal biotechnology is the search for clean energy. EC legislation to increase the proportion of energy generated from renewable sources (EC Directive 2009/28/EC) provides a clear incentive to reduce our current reliance on fossil fuels.

Microalgae are increasingly being recognized as a **sustainable feedstock for biofuel production** due to their high rates of production and the significant fraction of the biomass that is made up of useful lipids (oils) and carbohydrates.

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Investing in Opportunities

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INTERREG IVB

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