

BLUE-GREEN ALGAE – DO YOU KNOW THE DIFFERENCE? ... Neil Tucker

This is the third in the series about the small and different – Fungi, Blue-green Algae etc. – the first articles being in the May and August Newsletters.

Cyanobacteria, also known as Blue-green Algae, are not algae, but are photosynthetic bacteria. The name "Cyanobacteria" comes from the colour of these bacteria (Greek: κυανός (kyanós) = blue).

They are a significant component of the marine nitrogen cycle, and an important primary producer of food for fish and other complex organisms in many areas of the ocean. They are also found in habitats other than the marine environment; in particular cyanobacteria are known to occur in both freshwater and hypersaline inland lakes, and in arid areas, where they are a major component of biological soil crusts.

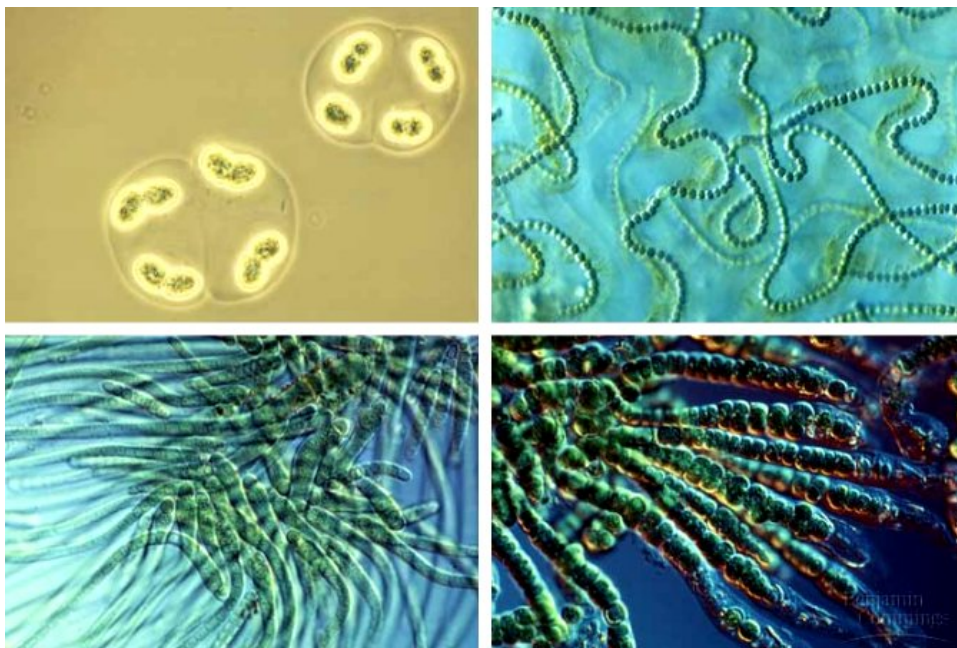
Stromatolites of fossilized, oxygen-producing cyanobacteria have been found from 2.8 billion years ago, and are possibly as old as 3.5 billion years. The capacity of cyanobacteria to perform oxygenic photosynthesis is thought to have converted the early reducing atmosphere into an oxidizing one, which dramatically changed the composition of life forms on Earth, by stimulating biodiversity, and leading to the near-extinction of oxygen-intolerant organisms.

Cyanobacteria can be found in almost every conceivable environment, from oceans to fresh water to bare rock to soil. They can occur as planktonic cells, or form biofilms in fresh water and marine environments; they occur in damp soil, or even temporarily moistened rocks in deserts. A few are symbiotic with fungi to form some lichens (to be discussed in a later article); others are symbiotic with plants, various protists (mostly single cell-organisms), or sponges, and provide energy for the host. Some live in the fur of sloths, providing a form of camouflage for the animal.

Aquatic cyanobacteria are probably best known for the extensive, and highly visible, blooms that can form in both freshwater and the marine environment, and can have the appearance of blue-green paint or scum. The association of toxicity with such blooms has frequently led to the closure of recreational waters when blooms are observed. The tiny marine cyanobacterium *Prochlorococcus* was discovered in 1986; it accounts for more than half of the photosynthesis of the open ocean.

The cells of all bacteria are classified as "prokaryotic", the simplest and most ancient of the cell types. Prokaryotes lack many of the structures found in the more complex, "eukaryotic" cells of higher plants and animals. In particular, their DNA just floats in the cell, not in an enclosed nucleus.

Bacteria occur in 3 basic shapes: rod (bacillus), spherical or round (coccus), and spiral (spirillum). The bacilli and the cocci may form chains of a length typical of the particular bacterium. Cyanobacteria are the most prevalent of the photosynthetic bacteria.



Cyanobacteria can be unicellular, filamentous or colonial. The filaments and colonies are not considered multicellular because each cell is independent of the others. Cyanobacteria lack any visible means of locomotion. (Magnification – ~1,000,000)

Reference: <http://en.wikipedia.org/wiki/Cyanobacteria>.

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