

Photosynthetic pigments

Organic pigments like chlorophyll can only absorb light wavelengths in the visible spectrum. Wavelengths shorter than 380nm contain too much energy and would tear molecules apart, whereas wavelengths longer than 700nm would not contain enough energy to raise an electron to another orbital. Different pigments are required to absorb the different wavelengths of light. If a pigment is unable to absorb a given wavelength it will reflect it instead, giving the characteristic corresponding color (i.e., green). Photosynthetic pigments are found in two major classes: **chlorophylls** and **carotenoids**. In turn, each class contains subclasses. For example, chlorophylls exist in five subclasses: a, b, c, d and bacteriochlorophyll, but only a and b are found in plants. Carotenoids have many more subclasses as can be observed by the array of different colored fruits. Carotenoids absorb blue to green light wavelengths (reflect reds) while chlorophylls absorb blue to red wavelengths (reflect green).



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