

Pigment	Absorption maxima (nm)					
	B	R	S	N	N	Extinct (methanol)
Bacteriochlorophyll a (purple bacteria)	$-CH_2-$	$-CH_2^+$	$-CH_2-CH_2-$	$-CH_2-$	$-O-CH_2-$	714 (g)–800
Bacteriochlorophyll b (green bacteria)	$-CH_2-$	$-CH_2-$	$-CH_2-CH_2-$	$-CH_2-$	$-O-CH_2-$	700 (g)–790 (g)
Bacteriochlorophyll c (green sulfur bacteria)	$-H$	$-CH_2-$	$-CH_2-$	$-CH_2-$	$-H$	700 (g)–790 (g)
Bacteriochlorophyll d (green sulfur bacteria)	$-H$	$-CH_2-$	$-CH_2-$	$-CH_2-$	$-H$	700 (g)–790 (g)
Bacteriochlorophyll e (green sulfur bacteria)	$-H$	$-CH_2-$	$-CH_2-$	$-CH_2-$	$-H$	700 (g)–790 (g)
Bacteriochlorophyll f (purple bacteria)	$-H$	$-CH_2-$	$-CH_2-$	$-CH_2-$	$-H$	700 (g)–790 (g)
Bacteriochlorophyll g (purple bacteria)	$-H$	$-CH_2-$	$-CH_2-$	$-CH_2-$	$-H$	700 (g)–790 (g)

Bacteriochlorophyll Structures

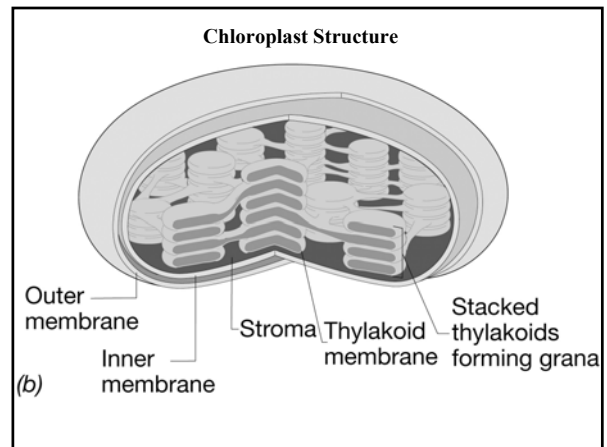
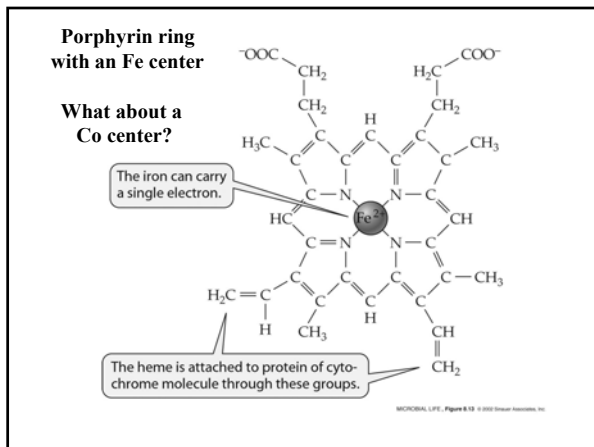


Table 9.1 Some general properties of the various photosynthetic bacteria

	Nonsulfur Purple Bacteria	Purple Sulfur Bacteria	Green Sulfur Bacteria	Cyano-bacteria	Helio-bacteria
Source of reducing power (e^-)	H_2 , reduced organic	H_2S	H_2S	H_2O	Lactate, organic
Oxidized product	Oxidized organic	SO_4^{2-}	SO_4^{2-}	O_2	Oxidized organic
Source of carbon	CO_2 or organic	CO_2	CO_2	CO_2	Lactate pyruvate
Heterotrophic growth	Common	Limited ^d	Limited ^d	Limited ^d	Required

^dGenerally limited to assimilation of low molecular weight organics during autotrophic growth.

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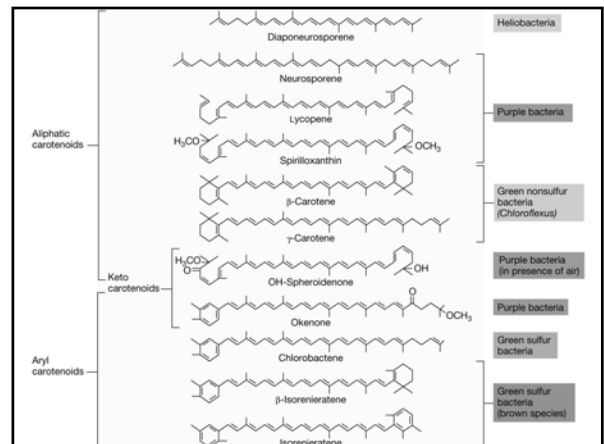
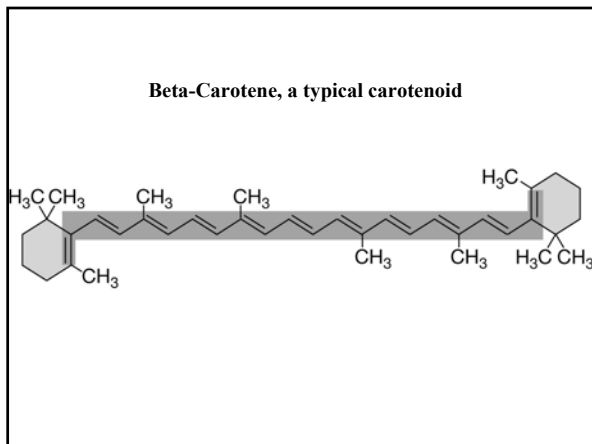
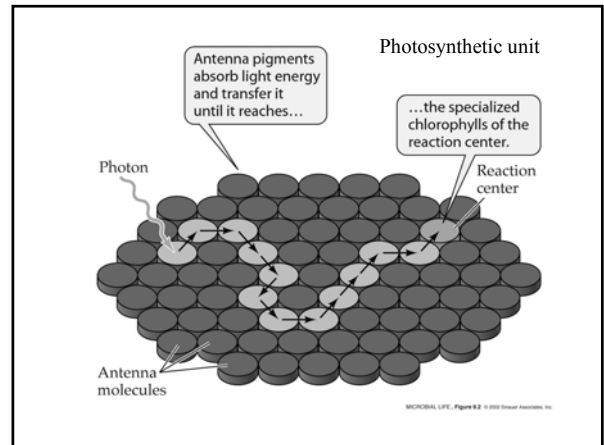
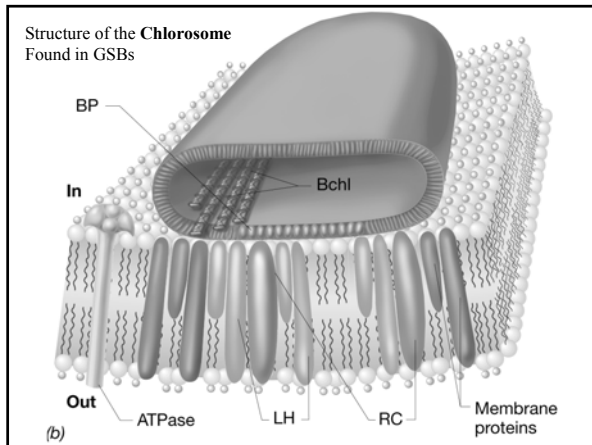
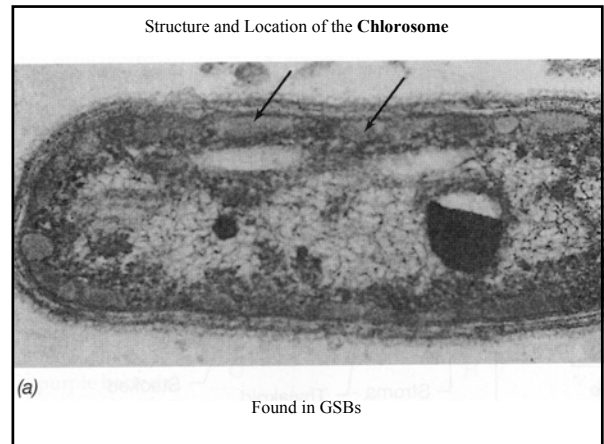


Table 9.2 The bacteriochlorophyll present in photosynthetic bacteria and primary acceptors involved in energy conserving reactions

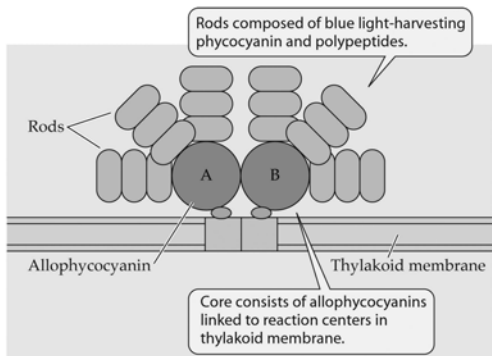
	Electron Donor	Electron Acceptor
Purple nonsulfur bacteria	Bacteriochlorophyll <i>a</i> and <i>b</i>	Bacteriopheophytin <i>a</i> , Q_A , and Q_B
Green sulfur bacteria	Bacteriochlorophyll <i>c</i> , <i>d</i> , and <i>e</i>	Bacteriopheophytin <i>a</i> and FeS-protein
Cyanobacteria photosystem I	Chlorophyll <i>a</i>	Chlorophyll <i>a</i> and FeS-protein
Cyanobacteria photosystem II	Chlorophyll <i>a</i>	Phaeophytin <i>a</i> , Q_A , Q_B , and plastoquinones
<i>Heliobacteria</i>	Bacteriochlorophyll <i>g</i>	Bacteriochlorophyll <i>c</i> and FeS-protein

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Structure and Location of **Phycobilisomes**

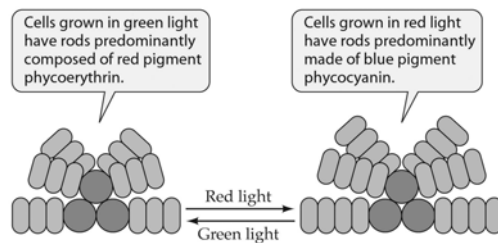


Phycobilisome of cyanobacteria



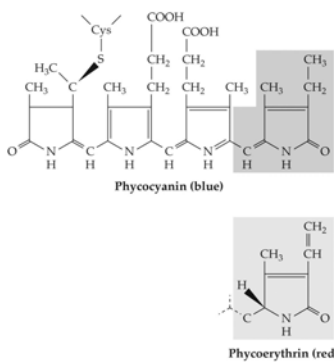
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Chromatic adaptation of a phycobilisome



MICROBIAL LIFE, Figure 9.9 © 2003 Sinauer Associates, Inc.

Chromophores of phycobilisomes



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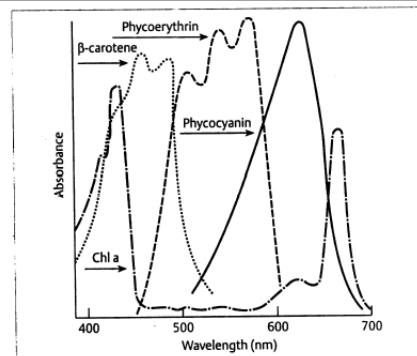


Fig. 13.5 Absorption spectra of pigment-proteins from cyanobacteria. — chlorophyll *a* (Chl *a*), - - - phycoerythrin, β -carotene, — phycocyanin

