

**BUOYANT DENSITIES OF PHOTOTROPHIC SULFUR BACTERIA
AND CYANOBACTERIA**

R Guerrero

The buoyant densities of bacterial cells can be greatly influenced by the accumulation of intracellular reserve material. The buoyant density of phototrophic bacteria that are planktonic is of particular interest, since these organisms must remain in the photic zone of the water column for optimal growth. Separation of cells by their buoyant density may also be of use in separating and identifying organisms from a natural population.

The bacteria used in this study were obtained from pure cultures, enrichments, or samples taken directly from the environment. Table II-4 lists the bacteria, their buoyant density, and the source of the sample.

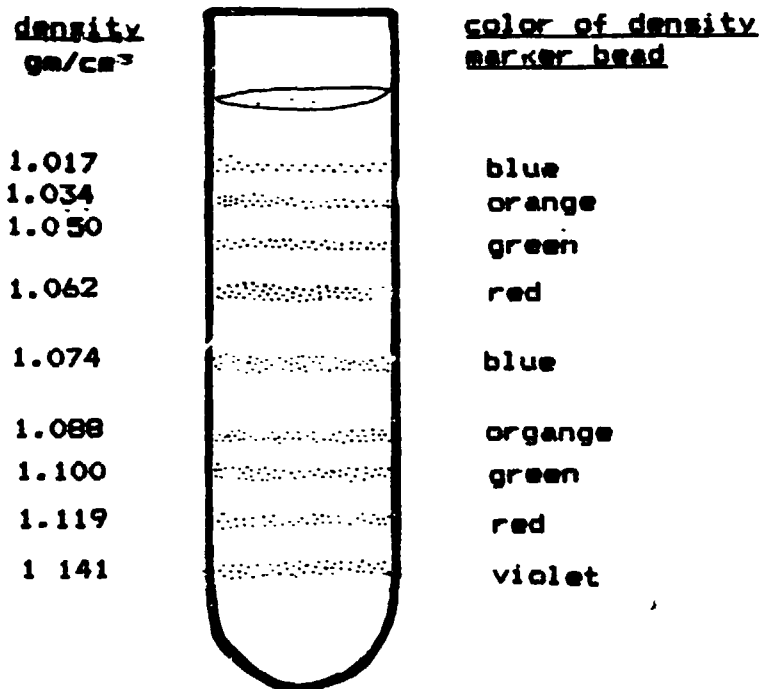


Figure II-19. Percoll gradient with density marker beads.

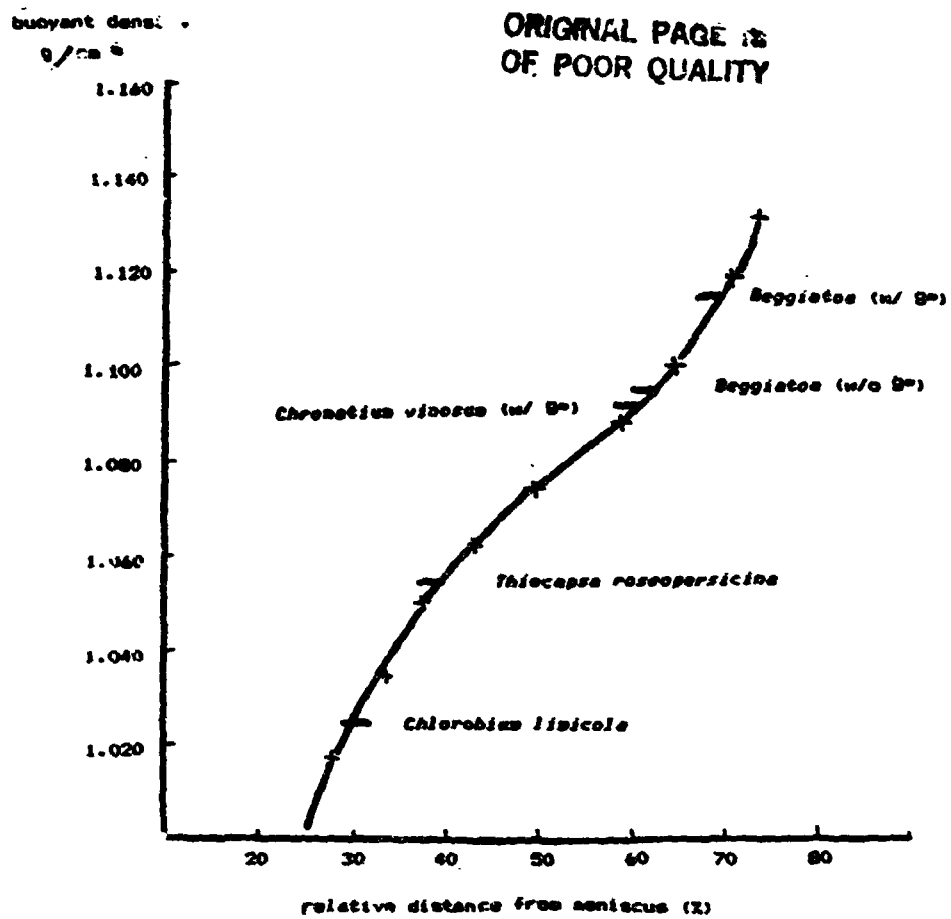


Figure II-20. Buoyant density of phototrophic sulfur bacteria and cyanobacteria.

ORGANISM	DENSITY g/cm ³	SOURCE OF SAMPLE
<i>Thiocystis gelatinosa</i>	1.040	Pure culture
<i>Thiocystis gelatinosa</i>	1.030	Big Soda Lake
<i>Thiocapsa roseopersicina</i>	1.054	Pure culture
<i>Chromatium vinosum</i>	1.087-1.130	Pure culture
<i>Chromatium minutissimum</i>	1.078	Pure culture
<i>Chlorobium phaeobacteroides</i>	1.072	Pure culture
<i>Chlorobium limicola</i>	1.025	Pure culture
	1.014	Enrichment
<i>Chlorobium vibrioforme</i>	1.100	Pure culture
<i>Prosthecochloris</i> sp.	1.045	Enrichment Salt marsh
<i>Rhodopsuedomonas sphaeroides</i>	1.088	Pure culture
<i>Rhodopsuedomonas capsulata</i>	1.074	Pure culture
<i>Rhodopsuedomonas palustris</i>	1.095	Pure culture
<i>Ectothio rhodospira</i> sp.	1.080	Big Soda Lake
<i>Anacystis nidulans</i>	1.119	Pure culture
<i>Synechocystis</i> sp.	1.020	Enrichment Alum Rock, Site III
<i>Oscillatoria</i> sp.	1.119	Enrichment Alum Rock, site III
<i>Oocystis</i> sp. (eukaryotes chlorophyte)	1.017	Big Soda Lake

Table II-4. Buoyant densities of purple and green phototrophic bacteria and cyanobacteria at 20°.