

TABLE 7.3 Date on Elemental Composition of Several Microorganisms

Microorganism	Limiting Nutrient	μ (h ⁻¹)	Composition (% by wt)							Empirical Chemical Formula	Formula "Molecular" Weight
			C	H	N	O	P	S	Ash		
Bacteria			53.0	7.3	12.0	19.0			8	CH _{1,666} N _{0,20} O _{0,27}	20.7
Bacteria			47.1	7.8	13.7	31.3				CH ₂ N _{0,25} O _{0,5}	25.5
<i>Aerobacter aerogenes</i>			48.7	7.3	13.9	21.1			8.9	CH _{1,78} N _{0,24} O _{0,33}	22.5
<i>Klebsiella aerogenes</i>	Glycerol	0.1	50.6	7.3	13.0	29.0				CH _{1,74} N _{0,22} O _{0,43}	23.7
<i>K aerogenes</i>	Glycerol	0.85	50.1	7.3	14.0	28.7				CH _{1,73} N _{0,24} O _{0,43}	24.0
Yeast			47.0	6.5	7.5	31.0			8	CH _{1,66} N _{0,13} O _{0,40}	23.5
Yeast			50.3	7.4	8.8	33.5				CH _{1,75} N _{0,15} O _{0,5}	23.9
Yeast			44.7	6.2	8.5	31.2	1.08	0.6		CH _{1,64} N _{0,16} O _{0,52} P _{0,01} S _{0,005}	26.9
<i>Candida utilis</i>	Glucose	0.08	50.0	7.6	11.1	31.3				CH _{1,82} N _{0,19} O _{0,47}	24.0
<i>C. utilis</i>	Glucose	0.45	46.9	7.2	10.9	35.0				CH _{1,84} N _{0,2} O _{0,56}	25.6
<i>C. utilis</i>	Ethanol	0.06	50.3	7.7	11.0	30.8				CH _{1,82} N _{0,19} O _{0,46}	23.9
<i>C. utilis</i>	Ethanol	0.43	47.2	7.3	11.0	34.6				CH _{1,84} N _{0,2} O _{0,55}	25.5

With permission, from B. Atkinson and F. Mavituna, *Biochemical Engineering and Biotechnology Handbook*, Macmillan, Inc., New York, 1983.