



Handbook of Biochemistry and Molecular Biology

3rd Edition

Nucleic Acids – Volume II

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Nucleic Acids

GUANINE-PLUS-CYTOSINE (GC) COMPOSITION OF THE DNA OF BACTERIA, FUNGI, ALGAE AND PROTOZOA

Dr. William M. Normore

The table of bacteria (Table 1) is divided into seven columns. In column 1, the bacteria are listed alphabetically by families, with subdivisions for genera and species; alternate generic or species names are given in parentheses. In general, *Bergey's Manual of Determinative Bacteriology*¹ has been followed for classification, but Skerman's *A Guide to the Identification of the Genera of Bacteria*² and original papers were used in placing organisms not listed in *Bergey's Manual*. In column 2, the source of the organism and its strain designation have been given where possible. In columns 3, 4, and 5, the mole percent guanine-plus-cytosine values are given to the nearest 0.1%. Where ranges of values under any one method are listed, or where there are discrepancies between methods, the original papers should be consulted. The primary references for GC values are given in column A, while column B gives references to hybridization data on the same organisms. An alphabetized index of the genera precedes this table.

The tables for fungi, algae and protozoa (Tables 2, 3, and 4) are similarly arranged, except that column 1 lists the genera in alphabetical order.

The literature survey was concluded in May 1971.

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Genus	no.	Genus	no.
<i>Absidia</i>	142	<i>Anixiopsis</i>	151
<i>Acanthamoeba</i>	359	<i>Ankistrodesmus</i>	323
<i>Acetobacter</i>	103	<i>Arachnia</i>	4b
<i>Achlya</i>	143	<i>Arachniotus</i>	152
<i>Acholeplasma</i>	82a	<i>Archangium</i>	19
<i>Achromobacter</i>	1	<i>Arthrobacter</i>	48
<i>Acidaminococcus</i>	88	<i>Arthrobotrys</i>	153
<i>Acinetobacter</i>	33	<i>Aspergillus</i>	154
<i>Acrasis</i>	144	<i>Astasia</i>	361
<i>Acrothecium</i>	145	<i>Aureobasidium</i>	155
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<i>Actinomucor</i>	146	<i>Azotobacter</i>	22
<i>Actinomyces</i>	4	<i>Azotomonas</i>	105
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<i>Sphaerotilus</i>	45	<i>Streptomyces</i>	128
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<i>Spirillum</i>	123	<i>Streptovercillium</i>	129
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<i>Salmonella</i>	65	<i>Trigonopsis</i>	319
<i>Saprolegnia</i>	290	<i>Trypanosoma</i>	375
<i>Sapromyces</i>	291	<i>Ulothrix</i>	358
<i>Saprospira</i>	125	<i>Veillonella</i>	90
<i>Sarcina</i>	80	<i>Verticillium</i>	320
<i>Sartorya</i>	292	<i>Vibrio</i>	124
<i>Scenedesmus</i>	355	<i>Vitreoscilla</i>	135
<i>Schizophyllum</i>	293	<i>Wickehamia</i>	321
<i>Schizosaccharomyces</i>	294	<i>Wilbachia</i>	115
<i>Schwanniomyces</i>	295	<i>Xanthomonas</i>	110
<i>Sclerotinia</i>	296	<i>Zygorhynchus</i>	322

Table 1
GC COMPOSITION OF THE DNA OF BACTERIA

Organism	Source of Strain ^a	Mole % Guanosine + Cytosine ^b			References ^c	
		T _m	Chemical Analysis	Buoyant Density	A	B
Achromobacteriaceae						
1. <i>Achromobacter</i>						
<i>agilis</i>	NCIB 9986	67.6			171	
<i>albus</i>	NCIB 9988	61.8			171	
<i>anitrat</i>	ATCC 17912	42			172	172
	ATCC 17913	43			172	172
	8, 9			39.5	3	
<i>aquamarinus</i>	NCMB 557	58.0			171	
<i>arsenoxydans</i>	NCIB 8687	59.4			171	
<i>butyri</i>	NCIB 9404	60.5			171	
<i>citroalcaligenes</i>	2723/59,			40-41	4	
	ATCC 17908	42			172	172
<i>conjunctivae</i>	ATCC 17905	44			172	172
<i>cycloclastes</i>	IAM 1013	62.1			171	
	CRM ACY	64.2			171	
<i>fischeri</i>			40-42		5	
				44±1	228	
<i>formosus</i>	NCIB 9987	61.5			171	
<i>georgiopolitanum</i>	COC 21			41±1	173	
<i>haemolysans</i>	742/56			45.0	3	
	2408/57			41.5	3	
	2181/60,			39.5	3	
	ATCC 17907					
	ATCC 17988			41.0	3	
<i>haemolyticus</i>	ATCC 17907	43			172	172
	ATCC 17906	43			172	172
<i>halophilus</i>	AHU 1333	61.0			171	
<i>hartlebii</i>	NCIB 8129	63.5			171	
<i>iophagus</i>	NCMB 1051	64.8			171	
<i>liquefaciens</i>	W. Tulecke			41.0	6	
	ATCC 15716	44.6			171	
	NCIB 9989	66.0			171	

Table 1 (continued)
GC COMPOSITION OF THE DNA BACTERIA

Organism	Source of Strain ^a	Mole % Guanosine + Cytosine ^b			References ^c	
		T _m	Chemical Analysis	Buoyant Density	A	B
Achromobacteriaceae (continued)						
<i>Achromobacter</i>						
<i>lwoffi</i>	ATCC 17985			43.0	3	
	ATCC 17987			43.5	3	
	881/57			41.5	3	
	8858/62			38.0	3	
<i>metalcaligenes</i>	ATCC 17905	44			172	172
	ATCC 17910	46			172	172
<i>mucosus</i>	ATCC 17904	42			172	172
<i>turbidus</i>	AHU 1337	55.6			171	
<i>venosus</i>	NCIB 9985	61.8			171	
<i>viscosus</i>	NCIB 9408	61.2			171	
species	NCIB 9650	55.9			171	
	Pickett M153	56.6			171	
	Pickett M165	56.9			171	
	Pickett M140	58.1			171	
	Pickett M151	58.0			171	
	Pickett M155	58.0			171	
	Pickett M281	68.1			171	
	Pickett M250	67.7			171	
	NCIB 9387	68.2			171	
	NCMB 1156	56.7			171	
	NCMB 622	58.2			171	
	NCMB 623	58.5			171	
	NCMB 625	58.8			171	
	NCMB 624	59.1			171	
	Pickett M 25	62.0			171	
	Pickett M 22	62.0			171	
	Henderson H 38	62.1			171	
	Pickett M 6	62.2			171	
	NCIB P 18/2	62.8			171	
	NCIB P917/53	63.2			171	

Table 1 (continued)
GC COMPOSITION OF THE DNA OF BACTERIA

Organism	Source of Strain ^a	Mole % Guanosine + Cytosine ^b			References ^c	
		Tm	Chemical Analysis	Buoyant Density	A	B
Achromobacteriaceae (continued)						
<i>Achromobacter</i>						
species	NCIB	65.0			171	
	P 18/27					
	Pickett	66.8			171	
	M 185					
	N 4-B	59.4	60.8		174	
<i>Alcaligenes</i>						
<i>denitrificans</i>	CIP 60.81	65.4			171	
	CIP 60.83	66.7			171	
	CIP 6230	68.9			171	
	CIP X86	69.2			171	
	CIP X73	69.8			171	
<i>faecalis</i>	ATCC 8750,	54.8		54.8	7	
	NCIB 8156					
	3 strains		66.7-69.9		8	
	NCTC 8764			66.0	9	
	NCTC 8769			63.0	9	
	Cs 8			63.5	9	
	Cs 11			63.0	9	
		62.0			10	
	40	58.8			11	
	41	58.8			11	
	NCTC 415,	58.9			11	
	ATCC 19018					
	ATCC 8455			57.1	12	
	CIP 6415	58.4			171	
	Pinter 40	58.7			171	
	Pinter 41	58.8			171	
	Delft AF1	58.9			171	
	ATCC 19018	58.9			171	
	NCIB 8156	58.9			171	
	CIP 60.57	63.9			171	
	CIP R40	64.9			171	
	Holding	65.5			171	
	Cs 8					
	Holding	65.6			171	
	Cs 11					
	CIP 62.31	65.0			171	
	CIP R161	56.5			171	
	Lautrop	57.9			171	
	AB 78					
<i>hemolysans</i>	ATCC 17988-	44			172	172
<i>metacaligenes</i>	NCIB 8734	60.6			171	
<i>odorans</i>	Lautrop	56.8			171	
	AB 60					
	CC'EB 554	56.6			171	

Table 1 (continued)
GC COMPOSITION OF THE DNA OF BACTERIA

Organism	Source of Strain ^a	Mole % Guanosine + Cytosine ^b			References ^c		
		Tm	Chemical Analysis	Buoyant Density	A	B	
Achromobacteriaceae (continued)							
<i>Alcaligenes</i>							
<i>odorans</i>	Gilardi 79	57.0			171		
	CCEB 583	57.0			171		
	Gilardi 29	57.1			171		
	CCEB 568	57.2			171		
	Gilardi 115	57.4			171		
	Gilardi 116	57.4			171		
	Gilardi 142	57.6			171		
	CCEB 569	57.7			171		
	Lautrop	57.9			171		
	AB 209						
	Gilardi 117	57.9			171		
	Lautrop	58.1			171		
	AB 373						
	Lautrop	58.2			171		
	AB 1246						
	Mitchell 6	58.3			171		
	Mitchell 1	58.4			171		
	Mitchell 5	58.4			171		
	Lautrop	58.4			171		
	AB 54						
	Lautrop	58.4			171		
	AB 1157						
	Mitchell 4	58.5			171		
	Mitchell 2	58.6			171		
	Mitchell 3	58.6			171		
	Lautrop	58.6			171		
	AB 1472						
	species	Lautrop	57.2			171	
		AB 1286					
		Lautrop	57.5			171	
		AB 220					
		Lautrop	57.8			171	
AB 1289							
Lautrop		57.9			171		
AB 1199							
Lautrop		58.1			171		
AB 1347							
Lautrop		58.0			171		
AB 1194							
Lautrop		58.2			171		
AB 1350							
Lautrop		58.4			171		
AB 1258							
Lautrop		58.4			171		
AB 1367							
Caseltz		60.0			171		
AF 61							
Lautrop	68.6			171			
AB 374							