

Table 2. Mean cellular ion concentrations with standard error in bacteria sampled from various field samples and laboratory cultures.

Sample or culture	Ionic concentrations (mM)						Carbon/volume fg/ $\mu\text{m}^3$	n	
	Na	K	Mg	Ca	Cl	P			
Knebel vig, 1994	95±10	33±3	390±30	28±4	290±20	97±5	60±3	98	
Knebel vig, 1992	49±8	26±4	710±40	13±3	410±20	104±9	32±2	56	
Raunefjord, June	180±30	48±6	630±40	80±20	550±40	202±13	78±4	62	
Raunefjord, October	240±30	12±4	130±30	22±4	200±20	140±20	67±7	20	
Tvärminne	250±30	33±8	270±50	51±12	460±60	210±30	103±9	17	
Kalandsvatn	107±13	8±1	77±6	17±2	45±4	118±8	53±2	87	
<i>Vibrio natriegens</i>	Growing phase	400±70	320±90	73±4	8±1	1320±120	210±20	100±10	11
	Stationary phase	170±20	70±20	92±8	13±3	670±60	151±12	67±5	11
<i>Escherichia coli</i>	Growing phase	210±20	62±14	61±4	10±1	104±9	350±20	92±6	26
	Stationary phase	79±10	31±6	96±9	17±2	210±20	440±40	160±20	20

Note: The concentrations are determined from single cell XRMA measurements giving fg/cell of the elements, and by assuming the volumes are proportional to the length and width of air-dried bacteria (Heldal et al. 1985). For internal concentrations, these volumes are corrected for 18% nonosmotic volume. To what degree the ions are solved in the cells is not known (see text). Values for carbon content are taken from Fagerbakke et al. 1996.

Fagerbakke, K.M., Heldal, M., and Norland, S. 1996. Content of carbon, nitrogen, oxygen, sulfur and phosphorus in native aquatic and cultured bacteria. *Aquat. Microb. Ecol.* **10**: 15–27.

Heldal, M., Norland, S., and Tumyr, O. 1985. X-ray microanalytical method for measurements of dry matter and elemental content of individual bacteria. *Appl. Environ. Microbiol.* **50**: 1251–1257.