

Table 2. Ascorbate concentration in plant water for cells of different osmolarity

Organism	Ascorbate concentration in cell water/mol m ⁻³	Approximate cell osmolarity/osmol m ⁻³	References
Fruits of <i>Terminalia ferdinandiana</i>	180	500	Brand <i>et al.</i> (1983)
Leaves (traps) of <i>Dionaea muscipula</i>	60	500	Rea (1982)
Mean for leaves of 213 species of British wild plants	10	500	Jones & Hughes (1983)
Mean for seven species of green Swedish marine macroalgae	2.49 ± 0.19 (SEM) ¹	≥1000	Lindström (1943)
Mean for 20 species of brown Swedish marine macroalgae	2.78 ± 0.36 (SEM) ¹	≥1000	Lindström (1943)
Mean for 20 species of red Swedish marine macroalgae	1.46 ± 0.34 (SEM) ¹	≥1000	Lindström (1943)
<i>Euglena gracilis</i> photolithotrophic (wall-less flagellate chemoorganotrophic with contractile vacuoles)	7.7 ² 0.41 ²	110 110	Shigeoka <i>et al.</i> (1980); Raven (1982)
<i>Chlorella vulgaris</i> (walled)	3.7 ²	240 ³	Aaronson <i>et al.</i> (1977); Kirst (1977)
<i>Scenedesmus obliquus</i> (walled)	28 ²	155 ³	Aaronson <i>et al.</i> (1977); Kirst (1977)
<i>Chlamydomonas reinhardtii</i> (walled flagellate with contractile vacuoles)	3.7 ²	80	Aaronson <i>et al.</i> (1977); Raven (1982)
Mean for eight species of cultured marine phytoplankton	28.5 ± 9.2 ⁴	≥1000	Brown & Miller (1992)

¹Assumes that there are 4 m³ water per mg dry weight of cells for all except *Codium* for which 9 m³ is assumed.

²Assumes that there are 3 m³ of water per mg dry weight.

³Assumes that intracellular osmolarity is equal to twice the K⁺ concentration in intracellular water multiplied by 0.85 as the activity (osmotic) coefficient.

⁴From data in paper on ascorbate per unit cell volume and per unit dry weight assuming density of 1 mg m⁻³.

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