

Table 9.2 Enzymatic and physical parameters for rubisco

(a) Enzyme kinetic constants for rubisco

$k_{cat}^{CO_2}$	$k_{cat}^{O_2}$	$K_M^{CO_2}$	$K_M^{O_2}$	$\frac{k_{cat}^{CO_2}}{K_M^{CO_2}}$	$\frac{k_{cat}^{O_2}}{K_M^{O_2}}$
(s^{-1})	(s^{-1})	(μM)	(μM)	($s^{-1}M^{-1}$)	($s^{-1}M^{-1}$)
3.3	2.4	9	535	3.7×10^5	4.5×10^3

Values are for 25°C (Woodrow and Berry, 1988).

(b) Carbon dioxide and oxygen concentration in water vs temperature

Temperature (°C)	[CO ₂] (μM)	[O ₂] (μM)	[CO ₂]/[O ₂]
5	21.9	401	0.0515
15	15.7	320	0.0462
25	11.7	265	0.0416
35	9.1	228	0.0376