





7.1

7.2 가

7.3

7.3.1

7.3.2

7.4

2.



$$Y_{X/S}^M$$

-

()

ex)

:

10~11g dry weight/mole ATP

: 6.5g/mol ATP

(CO₂)

■ ATP

$$Y_{X/ATP}$$



$$\frac{1}{Y_{X/ATP}^{AP}} = \frac{1}{Y_{X/ATP}^M} + \frac{m_{ATP}}{D}$$

$Y_{X/ATP}^{AP}$: Biomass “ ”

m_{ATP} : ATP

- (Respiratory quotient, RQ)
(Respiratory ratio)

: 1 CO₂

- P/O

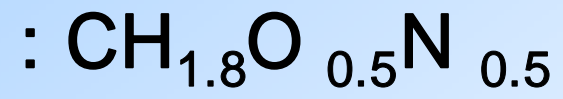
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(g mole P/g atm O)

-

- H/O (/)

3.



1

- CH O N

- 1g



- C: $1 = c + e$

$$H: m + 3b = c + 2d$$

$$O: n + 2a = c + d + 2e$$

$$N: \quad b = c$$

- $(RQ) = e/a$



■

$$b = 4 - m + 2n$$

$$b = 4 + -2 -3$$

$$p = 4 + x - 2y - 3z$$

■ $c + d + f = 1$ ()

$cf + dz = b$ ()

$c_b + d_p = s - 4d$ (가)

$$c\gamma_b + d\gamma_P = \gamma_S - 4a$$

$$1 = \frac{c\gamma_b}{\gamma_b} + \frac{d\gamma_P}{\gamma_S} + \frac{4a}{\gamma_S}$$

$$1 = \xi_b + \xi_P + \varepsilon$$

ε : , 가

ξ_b : 가

ξ_P : 가



- 1 가 : 24

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$$Y_{x/s} = 24(3.14) = 76 \text{ g dw} /$$

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$$Y_{x/s} = 76/180 = 0.4 \text{ g dw} /$$