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APPENDIX A

- i) Kinetic Study of Mycelium Growth of *V. volvacea* on Different Culture Media for Body Part Outer Surface.

Based on the equations shown in Figure 4.2,

For MEA, $y = 1.7033x + 0.9033$

$$\frac{dR}{dt} = k_r = \mu_w W$$

$$td = \frac{\ln 2}{\mu_w}$$

$$\mu_w = \frac{k_r}{W} = \frac{1.7033}{\frac{8.6}{2.4}} = 0.4754$$

$$td = \frac{\ln 2}{0.4757} = 1.4580 \text{ days}$$

For PDA, $y = 1.6229x - 1.3022$

$$\frac{dR}{dt} = k_r = \mu_w W$$

$$td = \frac{\ln 2}{\mu_w}$$

$$\mu_w = \frac{k_r}{W} = \frac{1.6229}{\frac{8.6}{2.4}} = 0.4529$$

$$td = \frac{\ln 2}{0.4757} = 1.5305 \text{ days}$$

For NA, $y = 0$

$$\frac{dR}{dt} = k_r = \mu_w W$$

$$td = \frac{\ln 2}{\mu_w}$$

$$\mu_w = \frac{k_r}{W} = \frac{0}{\frac{8.6}{2.4}} = 0$$

$$td = \frac{\ln 2}{0} = \text{undefined}$$

- ii) Kinetic Study of Mycelium Growth of *V. volvacea* on Different Culture Media for Body Part Inner Heart.

For MEA, $y = 1.0893x - 0.0031$

$$\frac{dR}{dt} = k_r = \mu_w W$$

$$td = \frac{\ln 2}{\mu_w}$$

$$\mu_w = \frac{k_r}{W} = \frac{1.0893}{\frac{8.6}{2.4}} = 0.3041$$

$$td = \frac{\ln 2}{0.3041} = 2.2795 \text{ days}$$

For PDA, $y = 0.862x + 0.0489$

$$\begin{aligned}\frac{dR}{dt} &= k_r = \mu_w W & td &= \frac{\ln 2}{\mu_w} \\ \mu_w &= \frac{k_r}{W} = \frac{0.862}{\frac{8.6}{2.4}} = 0.24.5 & td &= \frac{\ln 2}{0.24.5} = 2.8823 \text{ days}\end{aligned}$$

For NA, $y = 0$

$$\begin{aligned}\frac{dR}{dt} &= k_r = \mu_w W & td &= \frac{\ln 2}{\mu_w} \\ \mu_w &= \frac{k_r}{W} = \frac{0}{\frac{8.6}{2.4}} = 0 & td &= \frac{\ln 2}{0} = \text{undefined}\end{aligned}$$

iii) Kinetic Study of Mycelium Growth of *V. volvacea* using Glass Race Tube Method
As explained in 3.5.1,

$$y = K_t X + c$$

Rubber Wood Sawdust- $y = 2.219x - 1.4476$

Paddy Rice- $y = 2.0119x - 2.6661$

Paddy Straw- $y = 1.2582x - 2.5077$

Non-composted EFB- $y = 1.2176x - 2.4269$

Composted EFB- $y = 1.053x + 2.2276$

APPENDIX B

i) Extractives, Ash and Total Lignocellulosic of Paddy Straw (PS)

Based on the formula in 3.6.3,

Table B1: Extractives (W_1 , %)

Sample	G₀ (g)	G₁ (g)	W₁ (%)
PS 1	2.0010	1.7512	12.4838
PS 2	2.0018	1.7718	11.4897
PS 3	2.0011	1.7582	12.1383
Standard Deviation	0.0004	0.010	0.505
Average	2.0013	1.7624	11.8679

Based on the formula in 3.6.4,

Table B2: Hemicellulose (W_2 , %)

Sample	G₀ (g)	G₁ (g)	G₂ (g)	W₂ (%)
PS 1	2.0010	1.7512	1.2300	26.0570
PS 2	2.0018	1.7718	1.3300	22.0701
PS 3	2.0011	1.7582	1.4759	14.1072
Standard Deviation	0.0004	0.010	0.124	6.084
Average	2.0013	1.7624	1.3453	20.8415

Based on the formula in 3.6.5,

Table B3: Lignin (W_3 , %)

Sample	G₃ (g)	G₄ (g)	W₁	W₃ (%)
PS 1	1.0000	0.1202	0.1248	10.5200
PS 2	1.0000	0.1200	0.1149	10.6212
PS 3	1.0000	0.1201	0.1214	10.5520
Standard Deviation	0.0	0.0001	0.005	0.052
Average	1.0000	0.1201	0.1187	10.5847

Based on the formula in 3.6.2,

Table B4: Ash (A_d , %)

Sample	M₁ (g)	M₂ (g)	M₃	Ash, A_d (%)
PS 1	80.2067	82.0954	80.6079	21.2421
PS 2	85.9057	87.7920	86.3281	22.3930
PS 3	87.3334	89.2260	87.7853	23.8772
Standard Deviation	3.771	3.772	3.794	1.321
Average	84.4819	86.3711	84.9071	22.5069

Based on the formula in 3.6.5,

Table B5: Cellulose (W_4 , %)

Sample	Ash, A_d (%)	W₁ (%)	W₂ (%)	W₃ (%)	W₄ (%)
PS 1	21.2421	12.4838	26.0570	10.5200	29.6971
PS 2	22.3930	11.4897	22.0701	10.6212	33.4260
PS 3	23.8772	12.1383	14.1072	10.5520	39.3253
Standard Deviation	1.321	0.5047	6.084	0.052	4.855
Average	22.5069	11.8679	20.8415	10.5847	34.1200