LAMPIRAN

Lampiran 1. Simulasi Titik Ekuilibrium Ketika $R_0 < 1$

```
function dx=mdbd(t,x)
global mu1 mu2 alpha1 lamda1 lamda2 b1 b2 b3 b4
b5;
dx=zeros(7,1);
dx(1)=(lamda1-(b1*x(1)*x(7))-(b2*x(1)*x(3))-
(mu1*x(1))-(alpha1*x(1)));
dx(2)=((b2*x(1)*x(3))-(mu1*x(2))-(alpha1*x(2)));
dx(3)=((b1*x(1)*x(7))-(b3*x(3))-(mu1*x(3))-
(alpha1*x(3)));
dx(4)=((b3*x(3))-(mu1*x(4)));
dx(5)=(lamda2-(b4*x(5)*x(3))-(mu2*x(5)));
dx(6)=((b4*x(5)*x(3))-(b5*x(6))-(mu2*x(6)));
dx(7)=((b5*x(6))-(mu2*x(7)));


clear
clc
global mu1 mu2 alpha1 lamda1 lamda2 b1 b2 b3 b4
b5;
mu1=0.0128;
mu2=0.375;
alpha1=0.014;
lamda1=105.597
lamda2=0.0128;
b1=0.0034;
b2=0.0714;
b3=0.9;
b4=0.000244;
b5=0.0062;
[t,x]=ode45('mdbd',[0 2000],[0.5677 0.1923
0.0024 0.237 0.222 0.135 0.637]);


figure(1)
plot(t,x(:,1),'--g','linewidth',2);
title('Simulasi sh terhadap t');
legend('sh');
```

```
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
figure(2)
plot(t,x(:,2),'--r','linewidth',2);
title('Simulasi eh terhadap t');
legend('eh');
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
figure(3)
plot(t,x(:,3),'--b','linewidth',2);
title('Simulasi ih terhadap t');
legend('ih');
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
figure(4)
plot(t,x(:,4),'--k','linewidth',2);
title('Simulasi rh terhadap t');
legend('rh');
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
figure(5)
plot(t,x(:,5),'--m','linewidth',2);
title('Simulasi sv terhadap t');
legend('sv');
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
figure(6)
plot(t,x(:,6),'--c','linewidth',2);
title('Simulasi ev terhadap t');
legend('ev');
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
figure(7)
plot(t,x(:,7),'--y','linewidth',2);
title('Simulasi iv terhadap t');
legend('iv');
```

```
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
```

Lampiran 2. Simulasi Titik Ekuilibrium Ketika $R_0 < 1$ dengan $R_0 = 6{,}18093 \times 10^{-5}$

```
function dx=mdbd(t,x)
global mu1 mu2 alpha1 lamda1 lamda2 b1 b2 b3 b4
b5;
dx=zeros(7,1);
dx(1)=(lamda1-(b1*x(1)*x(7))-(b2*x(1)*x(3))-
(mu1*x(1))-(alpha1*x(1)));
dx(2)=((b2*x(1)*x(3))-(mu1*x(2))-(alpha1*x(2)));
dx(3)=((b1*x(1)*x(7))-(b3*x(3))-(mu1*x(3))-
(alpha1*x(3)));
dx(4)=((b3*x(3))-(mu1*x(4)));
dx(5)=(lamda2-(b4*x(5)*x(3))-(mu2*x(5)));
dx(6)=((b4*x(5)*x(3))-(b5*x(6))-(mu2*x(6)));
dx(7)=((b5*x(6))-(mu2*x(7)));
```

```
clear
clc
global mu1 mu2 alpha1 lamda1 lamda2 b1 b2 b3 b4
b5;
mu1=0.0128;
mu2=0.375;
alpha1=0.05;
lamda1=105.597
lamda2=0.0128;
b1=0.0034;
b2=0.0714;
b3=0.9;
b4=0.000244;
b5=0.0062;
[t,x]=ode45('mdbd',[0 2000],[0.5677 0.1923
0.0024 0.237 0.222 0.135 0.637]);
```

```
plot(t,x(:,1),'g',t,x(:,2),'r',t,x(:,3),'b',t,x(
:,4),'y',t,x(:,5),'m',t,x(:,6),'c',t,x(:,7),'k',
'linewidth',2);
title('Simulasi ketika R0<1');
legend('Susceptible(h)','Exposed(h)','Infected(h
)','Recovered(h)','Susceptible(v)','Exposed(v)',
'Infected(v)');
xlabel('waktu (hari)');
ylabel('populasi (individu)');
grid on
```

Lampiran 3. Simulasi Titik Ekuilibrium Ketika $R_0 < 1$ dengan $R_0 = 0{,}000122$

```
function dx=mdbd(t,x)
global mu1 mu2 alpha1 lamda1 lamda2 b1 b2 b3 b4
b5;
dx=zeros(7,1);
dx(1)=(lamda1-(b1*x(1)*x(7))-(b2*x(1)*x(3))-
(mu1*x(1))-(alpha1*x(1)));
dx(2)=((b2*x(1)*x(3))-(mu1*x(2))-(alpha1*x(2)));
dx(3)=((b1*x(1)*x(7))-(b3*x(3))-(mu1*x(3))-
(alpha1*x(3)));
dx(4)=((b3*x(3))-(mu1*x(4)));
dx(5)=(lamda2-(b4*x(5)*x(3))-(mu2*x(5)));
dx(6)=((b4*x(5)*x(3))-(b5*x(6))-(mu2*x(6)));
dx(7)=((b5*x(6))-(mu2*x(7)));


clear
clc
global mu1 mu2 alpha1 lamda1 lamda2 b1 b2 b3 b4
b5;
mu1=0.0128;
mu2=0.375;
alpha1=0.02;
```

```
lamda1=105.597
lamda2=0.0128;
b1=0.0034;
b2=0.0714;
b3=0.9;
b4=0.000244;
b5=0.0062;
[t,x]=ode45('mdbd',[0 2000],[0.5677 0.1923
0.0024 0.237 0.222 0.135 0.637]);


plot(t,x(:,1),'g',t,x(:,2),'r',t,x(:,3),'b',t,x(
:,4),'y',t,x(:,5),'m',t,x(:,6),'c',t,x(:,7),'k',
'linewidth',2);
title('Simulasi ketika R0<1');
legend('Susceptible(h)','Exposed(h)','Infected(h
)','Recovered(h)','Susceptible(v)','Exposed(v)',
'Infected(v)');
xlabel('waktu (hari)');
ylabel('populasi (individu)');
grid on
```

Lampiran 4. Simulasi Titik Ekuilibrium Ketika $R_0 > 1$

```
function dx=mdbd(t,x)
global mu1 mu2 alpha1 lamda1 lamda2 b1 b2 b3 b4
b5;
dx=zeros(7,1);
dx(1)=(lamda1-(b1*x(1)*x(7))-(b2*x(1)*x(3))-
(mu1*x(1))-(alpha1*x(1)));
dx(2)=((b2*x(1)*x(3))-(mu1*x(2))-(alpha1*x(2)));
dx(3)=((b1*x(1)*x(7))-(b3*x(3))-(mu1*x(3))-
(alpha1*x(3)));
dx(4)=((b3*x(3))-(mu1*x(4)));
dx(5)=(lamda2-(b4*x(5)*x(3))-(mu2*x(5)));
dx(6)=((b4*x(5)*x(3))-(b5*x(6))-(mu2*x(6)));
dx(7)=((b5*x(6))-(mu2*x(7)));
```

```
clear
clc
global mu1 mu2 alpha1 lamda1 lamda2 b1 b2 b3 b4
b5;
mu1= 0.003468;
mu2=0.000244;
alpha1=0.000123;
lamda1= 0.9;
lamda2=0.0034;
b1=0.8500;
b2=0.6794;
b3=0.5555;
b4=0.7186;
b5=0.1;
[t,x]=ode45('mdbd',[0 2000],[0.5677 0.1923
0.0024 0.237 0.222 0.135 0.637]);


figure(1)
plot(t,x(:,1),'--g','linewidth',2);
title('Simulasi sh terhadap t');
legend('sh');
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
figure(2)
plot(t,x(:,2),'--r','linewidth',2);
title('Simulasi eh terhadap t');
legend('eh');
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
figure(3)
plot(t,x(:,3),'--b','linewidth',2);
title('Simulasi ih terhadap t');
legend('ih');
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
figure(4)
plot(t,x(:,4),'--k','linewidth',2);
title('Simulasi rh terhadap t');
```

```
legend('rh');
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
figure(5)
plot(t,x(:,5),'--m','linewidth',2);
title('Simulasi sv terhadap t');
legend('sv');
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
figure(6)
plot(t,x(:,6),'--c','linewidth',2);
title('Simulasi ev terhadap t');
legend('ev');
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
figure(7)
plot(t,x(:,7),'--y','linewidth',2);
title('Simulasi iv terhadap t');
legend('iv');
xlabel('waktu (hari)');
ylabel('subpopulasi (individu)');
grid on
```