```
function dydt=iGEM_cyclicalenzyme(t,p)
%Oxidase with substrate(veratryl alcohol)
%Peroxidase with substrate(veratryl alcohol)
E1=7.22*10^-5; %Oxidase koncentration
E2=2.3*10^-5; %Peroxidase Koncentration
KC1=114; %Oxidase Kcat(turnover number)
KC2=5.33; %Peroxidase Kcat(turnover number)
K1=0.54; %Oxidase KM
K2=5.3; %Peroxidase KM
V1=E1*KC1; %Oxidase Vmax
V2=E2*KC2; %Peroxidase Vmax
U1=0; %Fraction of reusable product.
dydt=zeros(3,1); %System of differential equations
dydt(1)=-V1*p(1)/(K1+p(1))+V2*p(2)/(K2+p(2))*U1;
dydt(2)=V1*p(1)/(K1+p(1))-V2*p(2)/(K2+p(2));
dydt(3)=V2*p(2)/(K2+p(2));
end
```

```
tspan=[0 250000]; %The timespan that the reactions are analysed
po=[1,1,0]; %Initial concentration in the form [substrate,hydrogen peroxide,product]
[t,p] = ode45(@iGEM_cyclicalenzyme,tspan,po);%Calls the function
% Prints and graph of the reactions.
figure(1)
hold on
title('Enzyme Kinetics')
ylabel('Concentration(mM)')
xlabel('Time(s)')
plot(t,p(:,:))
legend('Substrate','Hydrogen Peroxide','Degraded Lignin')
```