מטלת MATLAB בכימיה לתלמידי הנדסה ביורפואית

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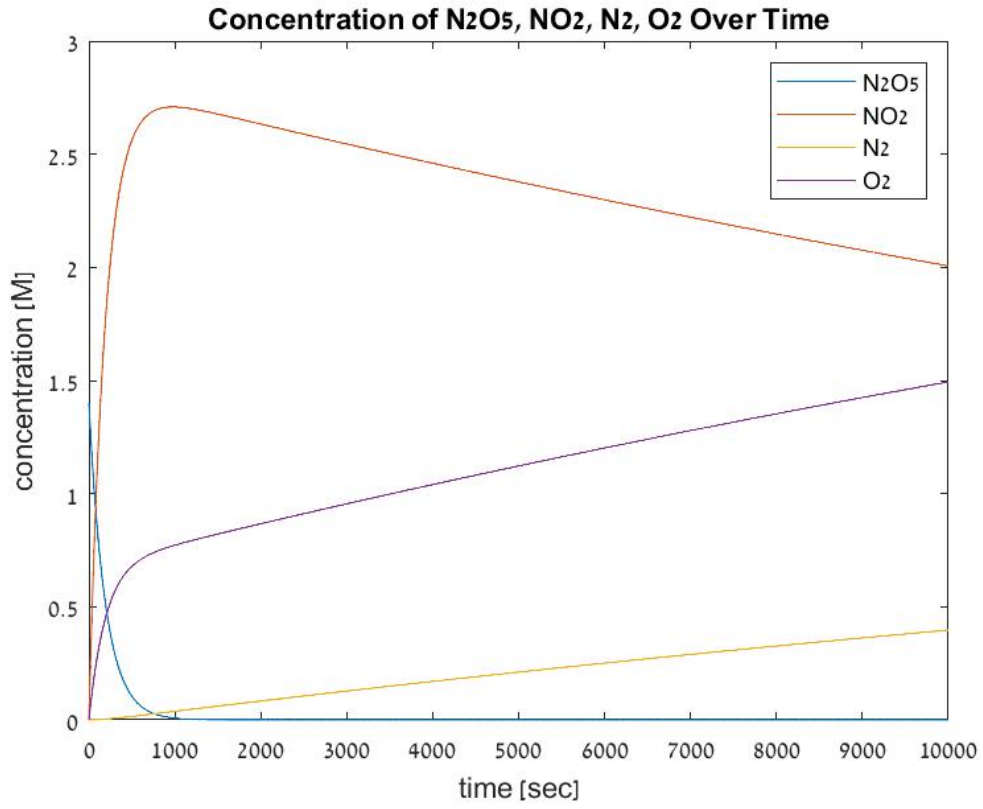
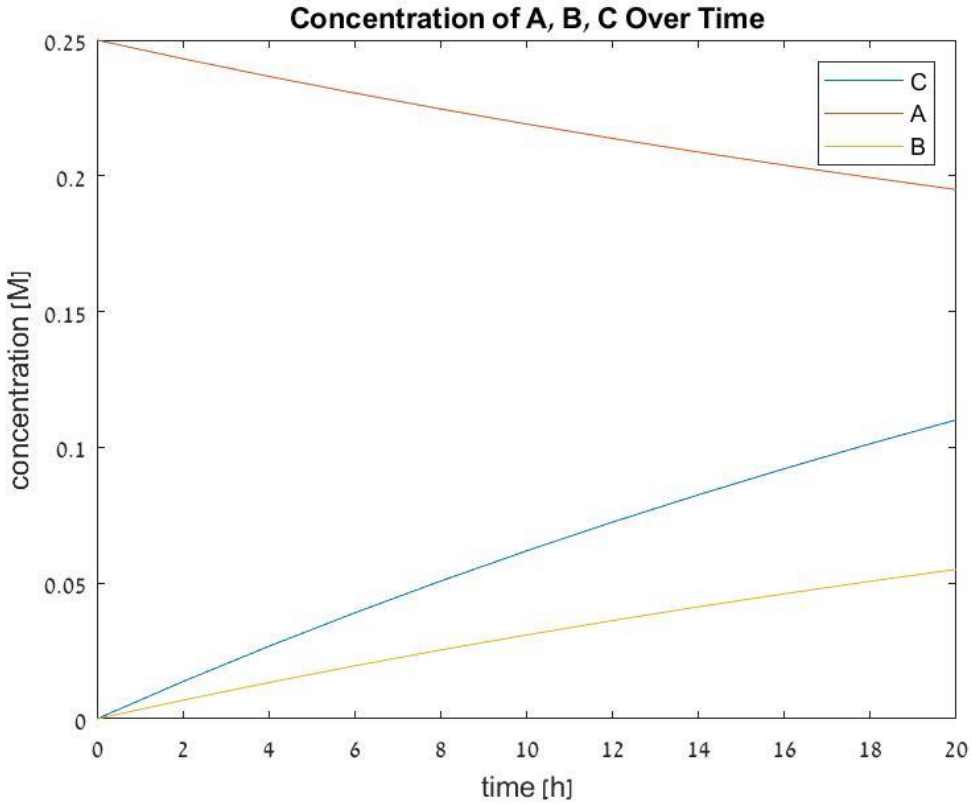
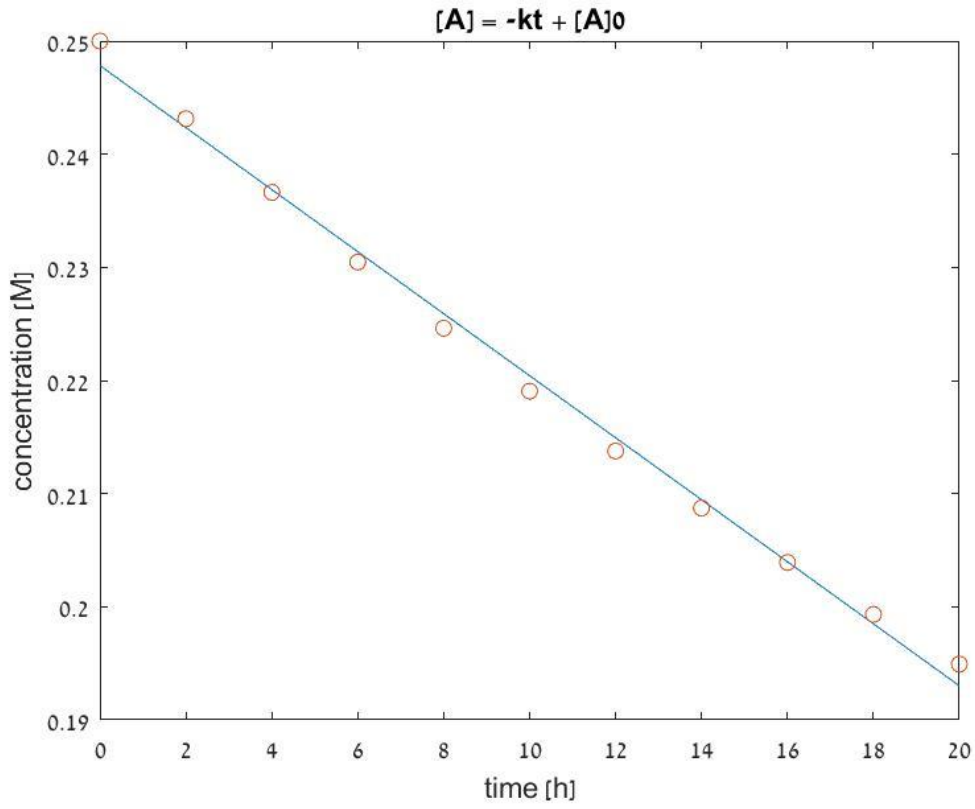
Script ראשי:

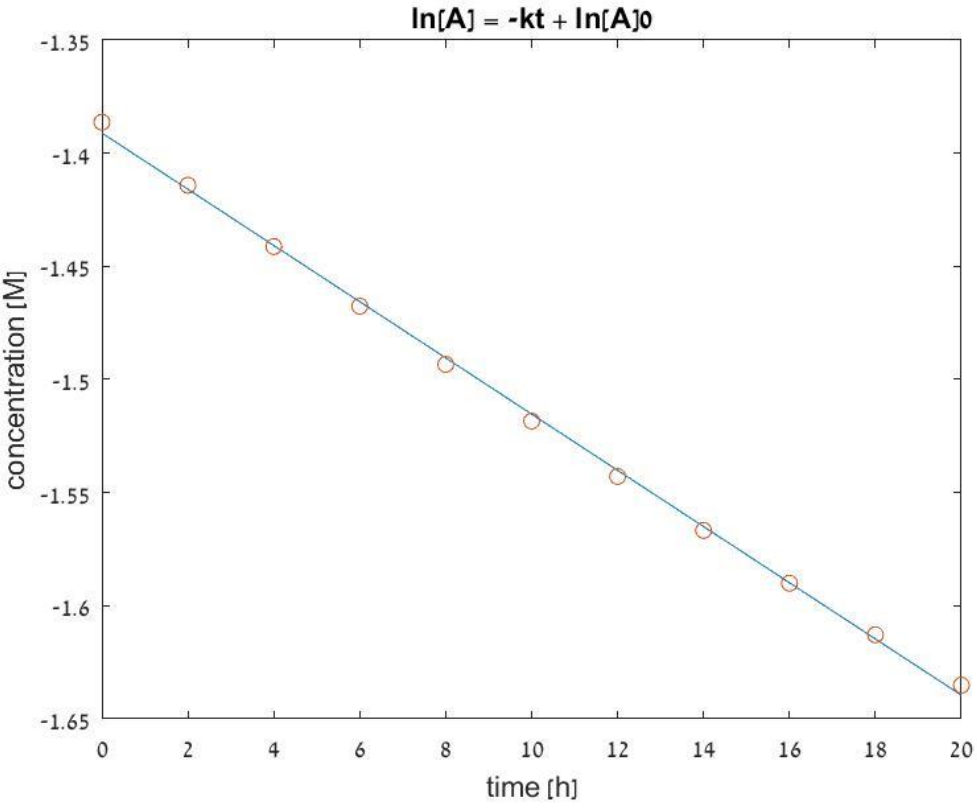
```
[n2o5, no2, n2, o2, dt] = calc_concentrations1(1.40,5.2*10^(-3),3.4*10^(-5),0.5);
x = linspace(0,10000,10000/dt);
y = n2o5;
figure(1);
plot (x, y);
hold on;
y = no2;
plot (x, y);
hold on;
y = n2;
plot(x, y);
hold on;
y = o2;
plot(x, y);
legend('N2O5', 'NO2', 'N2', 'O2');
xlabel('time [sec]');
ylabel('concentration [M]');
title('Concentration of N2O5, NO2, N2, O2 Over Time');
d = load('input_data.mat', '-mat');
cell = struct2cell(d);
data_mat = cell2mat(cell);
[A, B] = calc_concentrations2(data_mat, 0.250);
x = data_mat(:, 1);
y = data_mat(:, 2);
figure(2);
plot(x, y);
hold on;
y = A;
plot(x, y);
hold on;
y = B;
plot(x, y);
legend('C', 'A', 'B');
xlabel('time [h]');
ylabel('concentration [M]');
title('Concentration of A, B, C Over Time');
reaction_order(A, x);
```

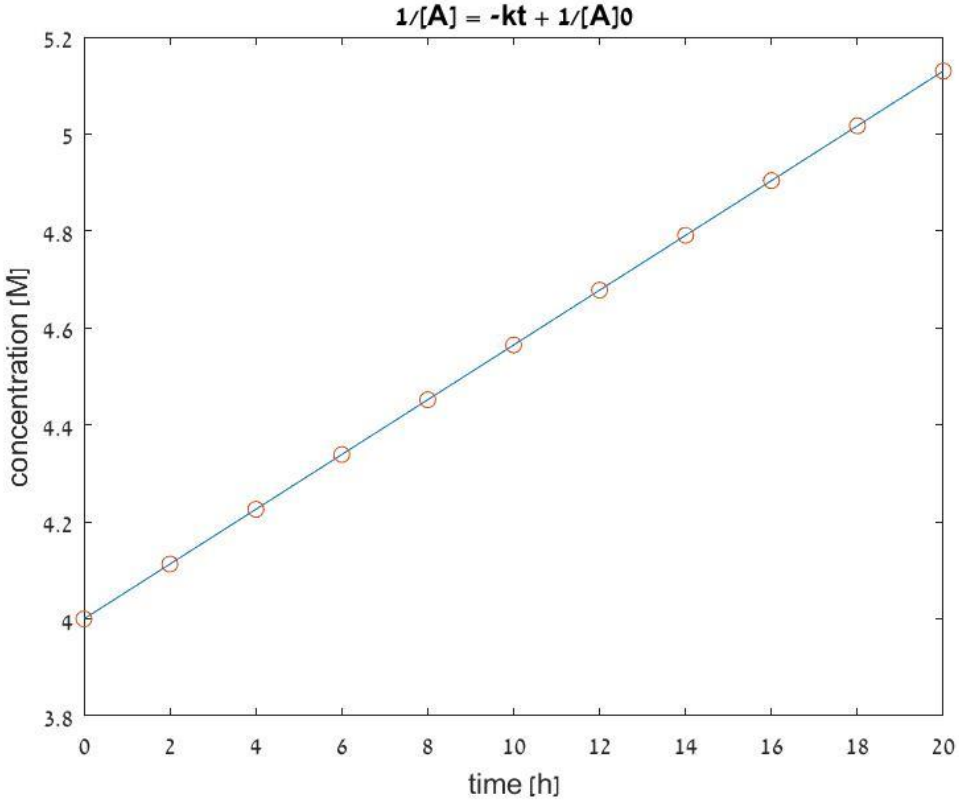
גרפים:


Concentration of N2O5, NO2, N2, O2 Over Time
concentration [M]
time [sec]
N2O5
NO2
N2
O2
0
0.5
1
1.5
2
2.5
3
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
10000


Concentration of A, B, C Over Time
concentration [M]
time [h]
C
A
B
0
0.05
0.1
0.15
0.2
0.25
0
2
4
6
8
10
12
14
16
18
20


[A] = -kt + [A]0
concentration [M]
time [h]
0.25
0.24
0.23
0.22
0.21
0.2
0.19
0
2
4
6
8
10
12
14
16
18
20


ln[A] = -kt + ln[A]0
concentration [M]
time [h]
-1.35
-1.4
-1.45
-1.5
-1.55
-1.6
-1.65
0
2
4
6
8
10
12
14
16
18
20


1/[A] = -kt + 1/[A]0
concentration [M]
time [h]
5.2
5
4.8
4.6
4.4
4.2
4
3.8
0
2
4
6
8
10
12
14
16
18
20