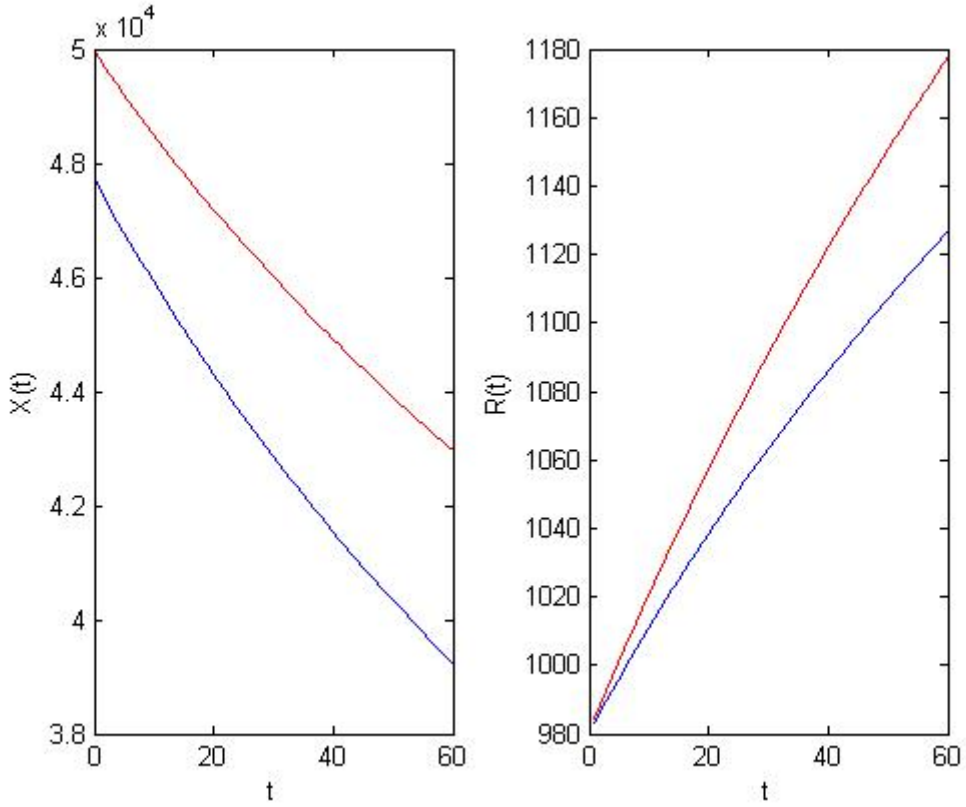
Legend: red graph (original values), blue graph (changed values)

1. Case - Large CZ (50% of the total epithelium area), smaller PGZ (23%) and GZ (18%)

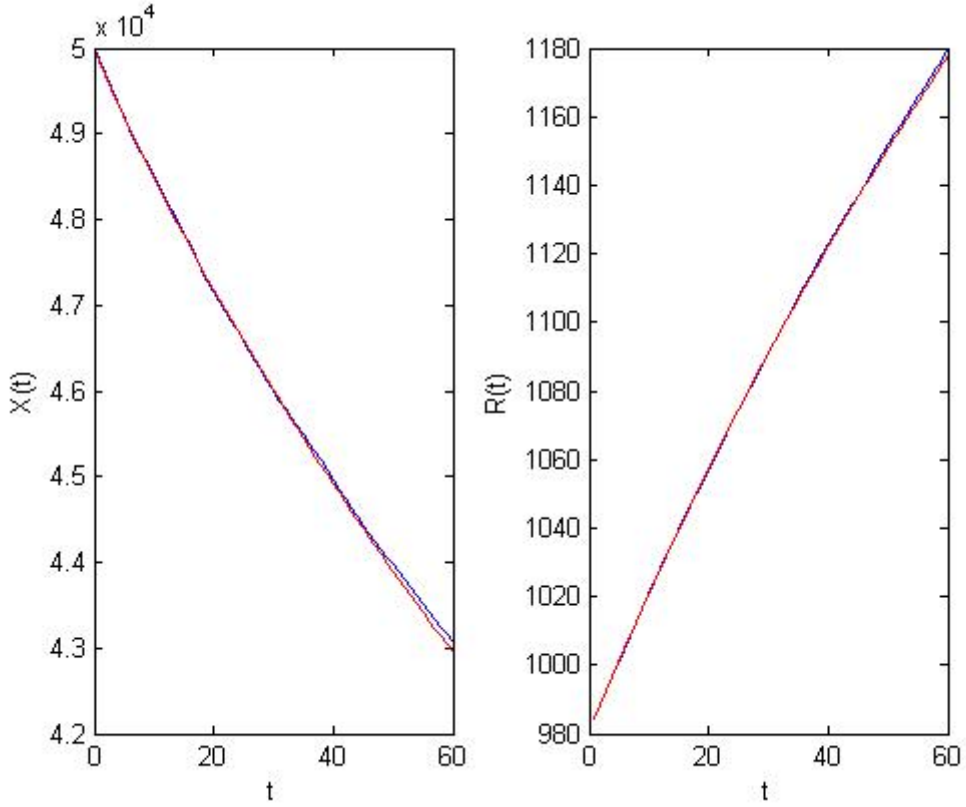
$$\eta_1 = 0.5\,, \eta_2 = 0.23\,, \eta_3 = 0.18\,, \eta_4 = 0.09$$

$$N_1 = 18857\,, N_2 = 10676\,, N_3 = 9874\,, N_4 = 8355$$



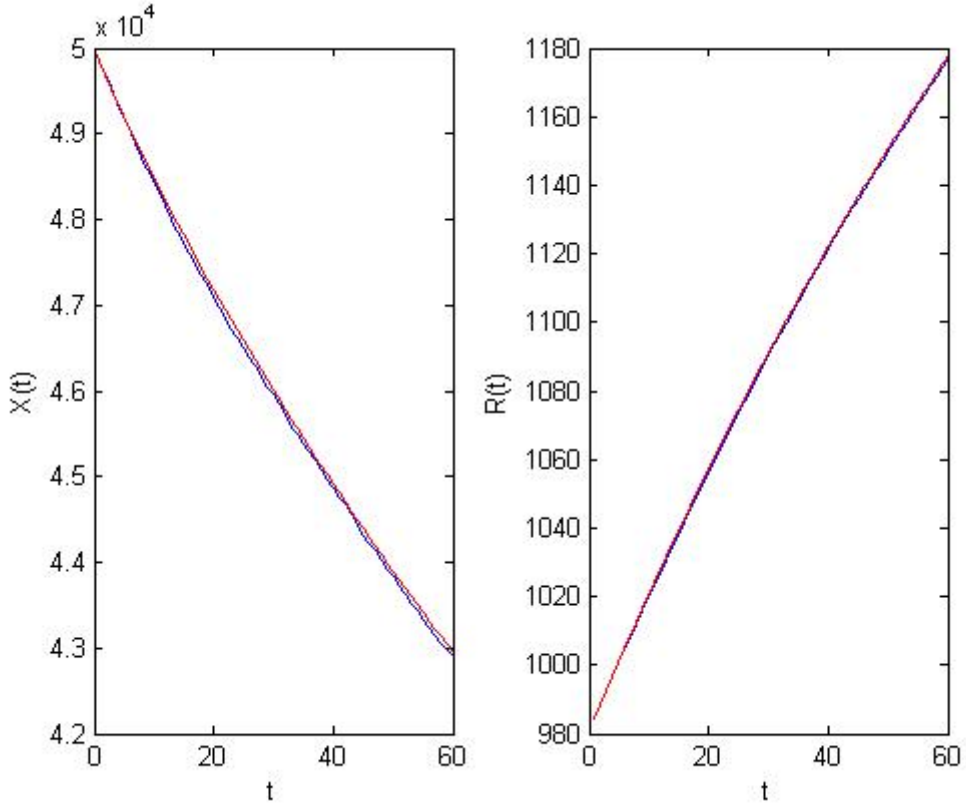
2. Case – very large GZ birth rate and death rate; difference „birth - death“ unchanged

$$p_0^{(3)} = 0.14\,, p_1^{(3)} = 0.66\,, p_2^{(3)} = 0.20$$



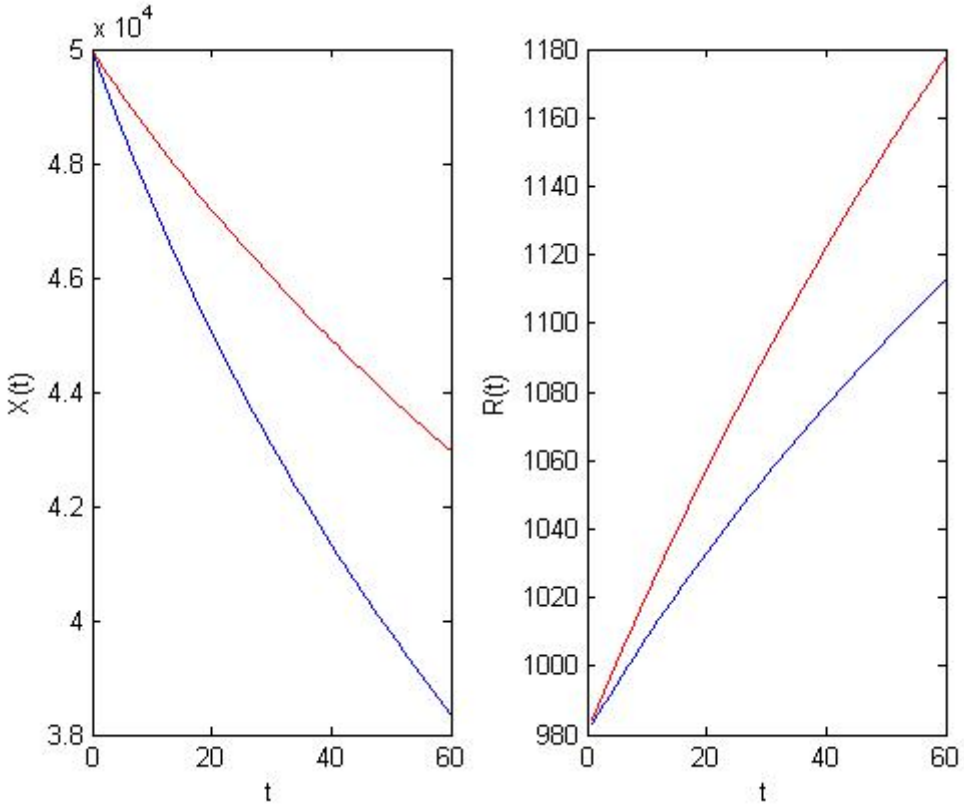
3. Case – very large PGZ birth rate and death rate; difference „birth - death“ unchanged

$$p_0^{(2)} = 0.18\,, p_1^{(2)} = 0.62\,, p_2^{(2)} = 0.20$$



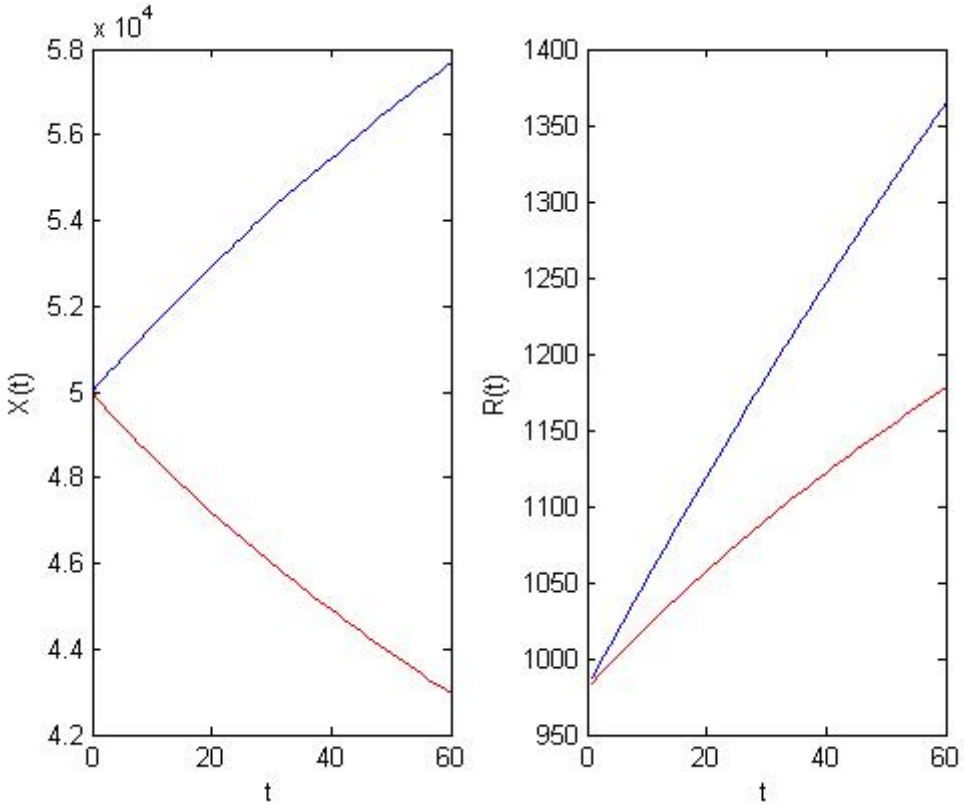
4. Case – smaller hexagons for fiber cells

$$\rho = 8\,, w = 1.6$$



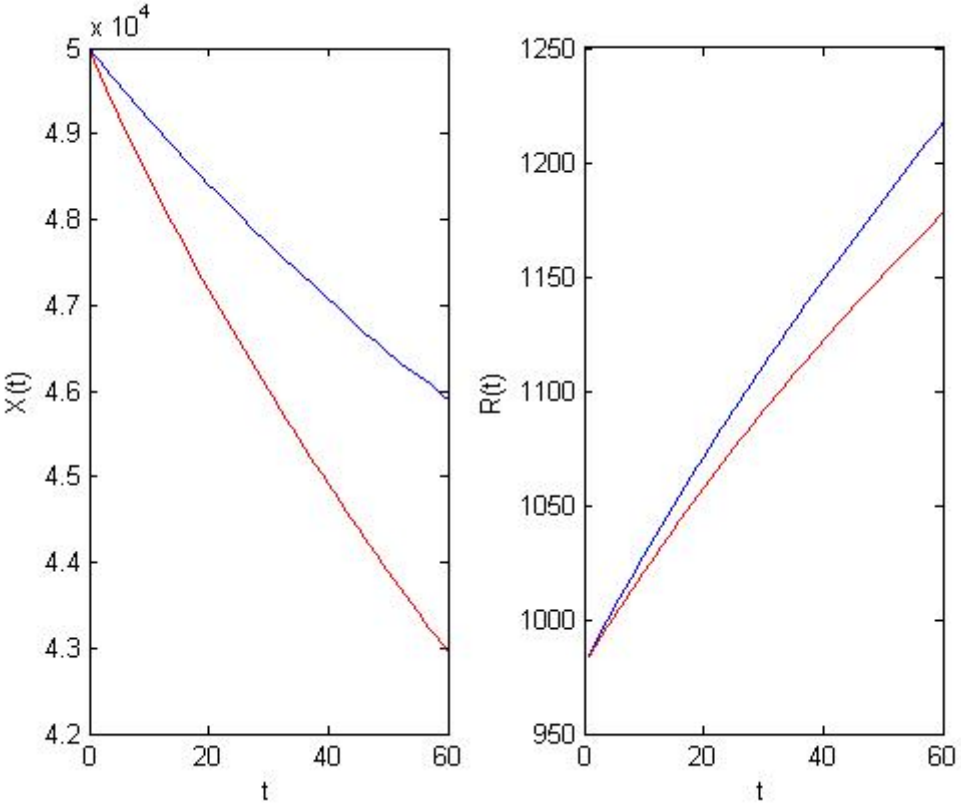
5. Case – larger hexagons for fiber cells

$$\rho = 15\,, w = 3$$



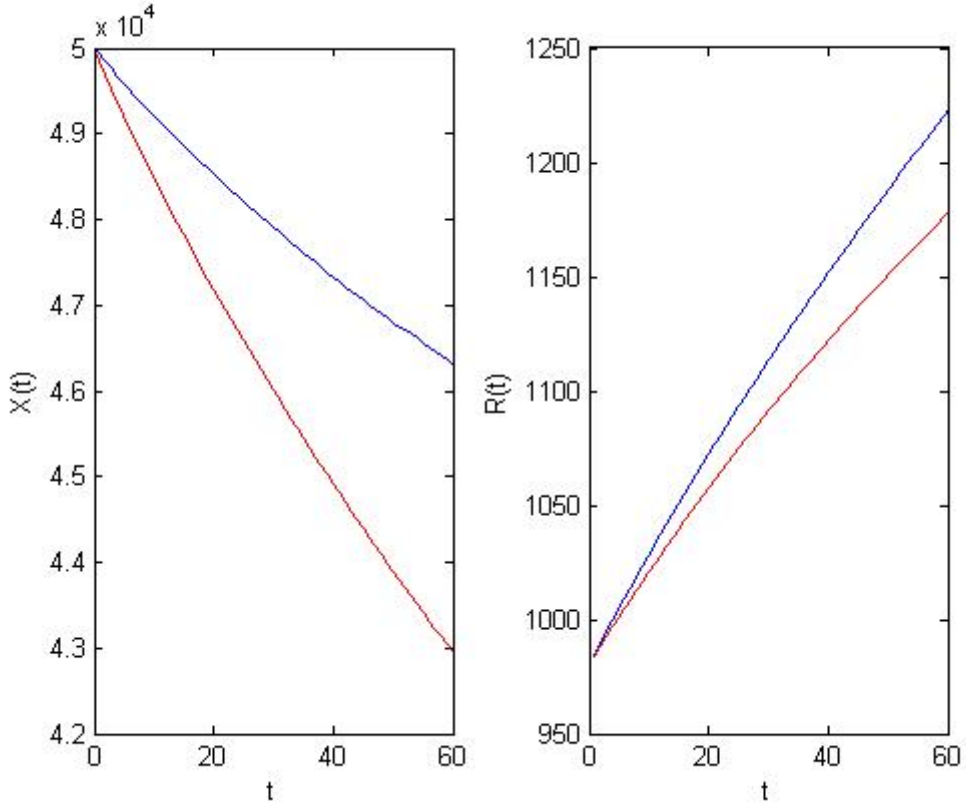
6. Case – larger birth rate in GZ

$$p_0^{(3)} = 0\,, p_1^{(3)} = 0.92\,, p_2^{(3)} = 0.08$$

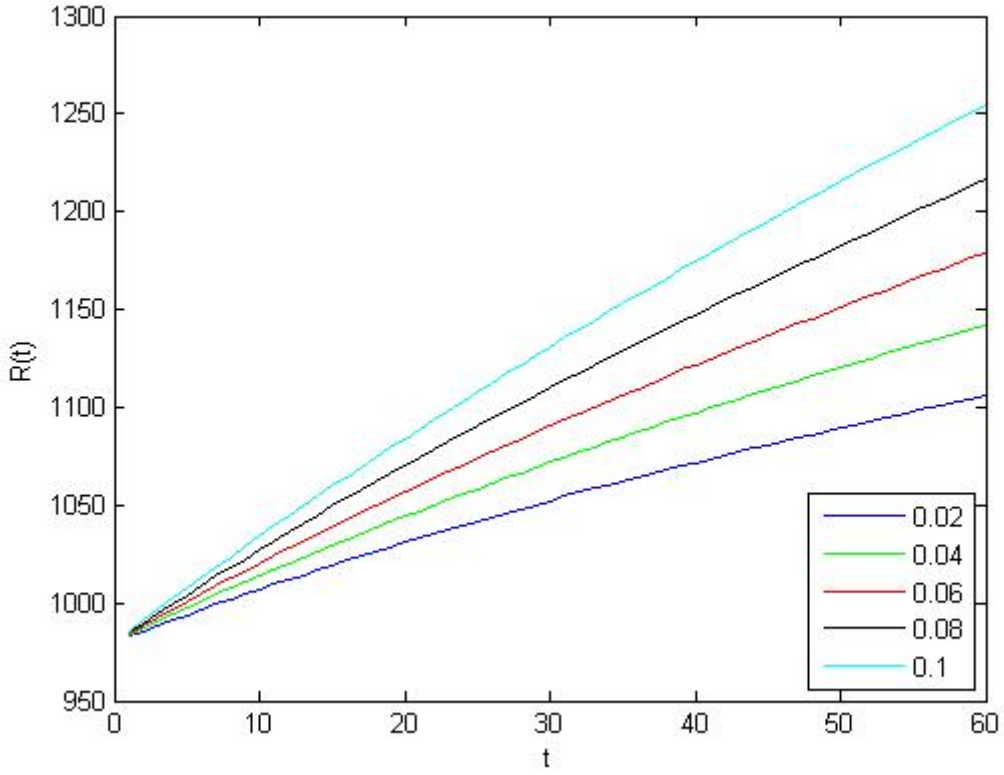


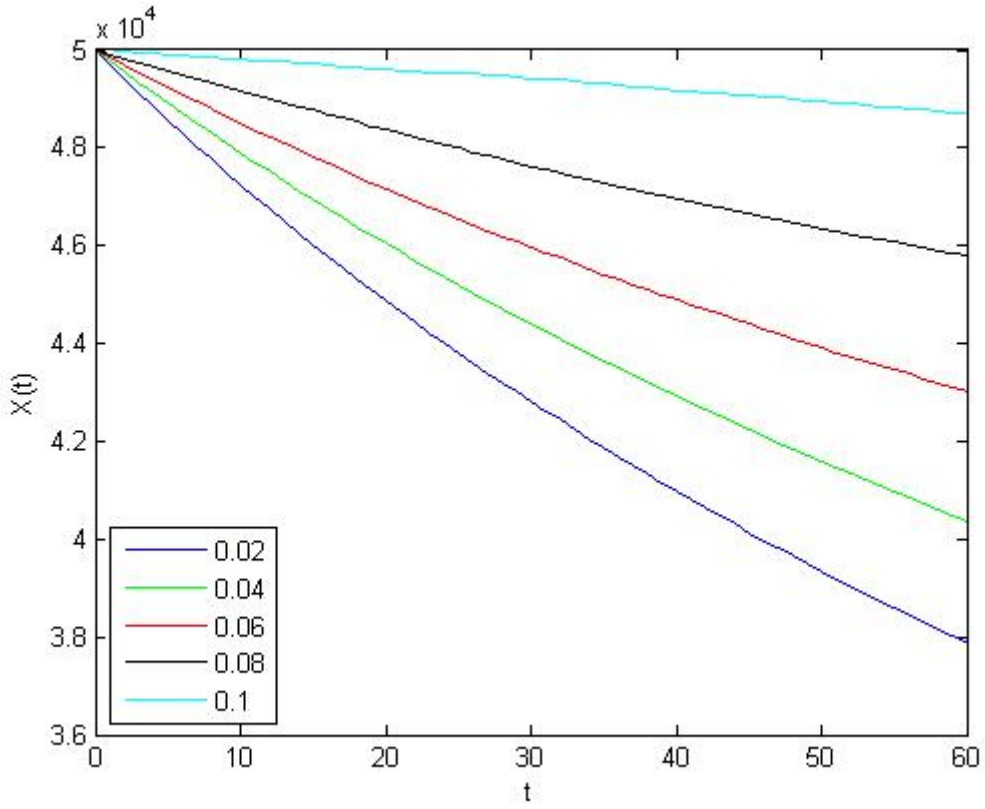
7. Case – larger birth rate in PGZ

$$p_0^{(2)} = 0\,, p_1^{(2)} = 0.96\,, p_2^{(2)} = 0.04$$

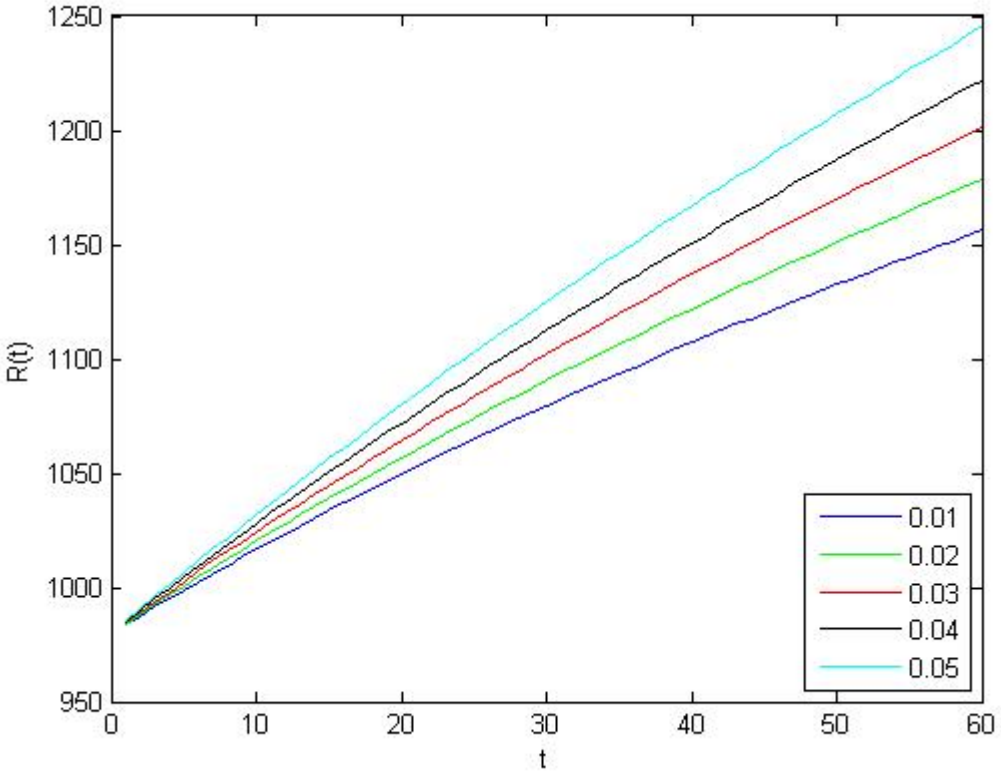


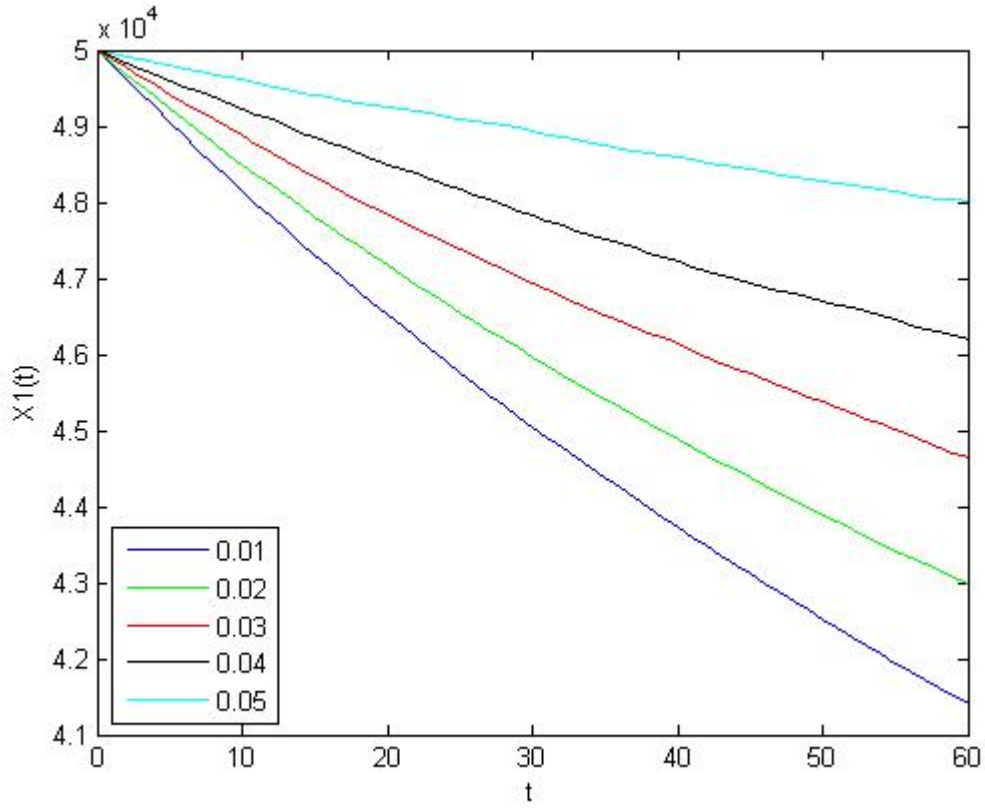
8. Case – dependence of the radius and total number of cells to the change of GZ birth rate range $p_2^{(3)} \in \{0.02\,, 0.04\,, 0.06\,, 0.08\,,\ 0.10\}$





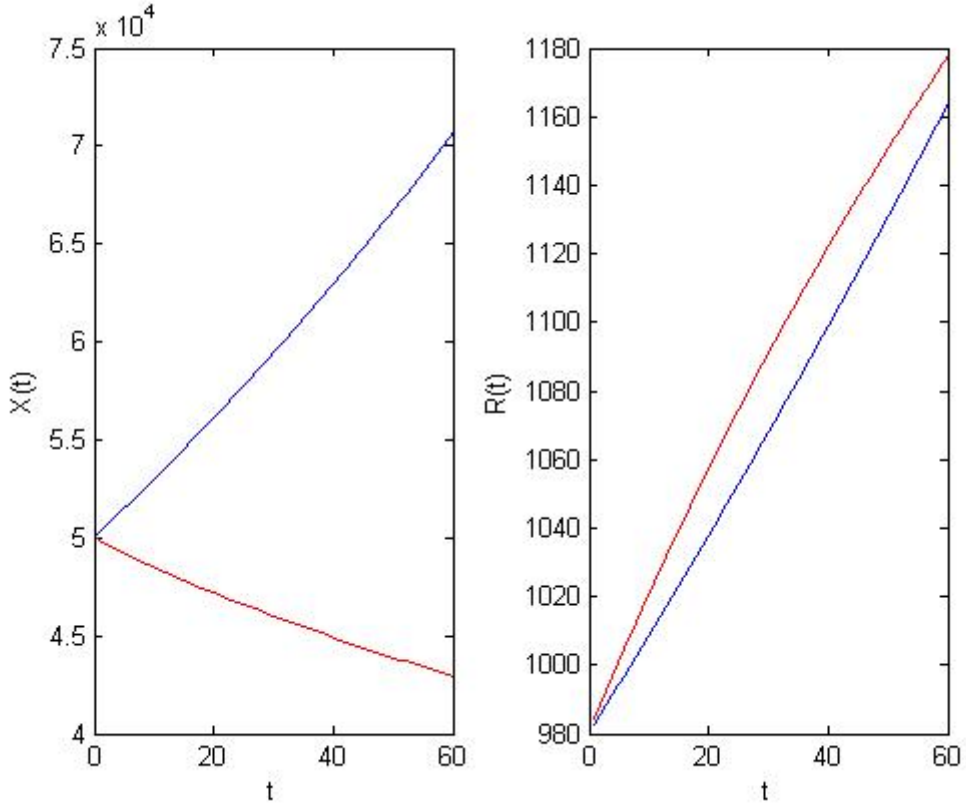
9. Case -– dependence of the radius and total number of cells to the change of PGZ birth rate range $p_2^{(2)} \in \{0.01\,, 0.02\,, 0.03\,, 0.04\,,\ 0.05\}$





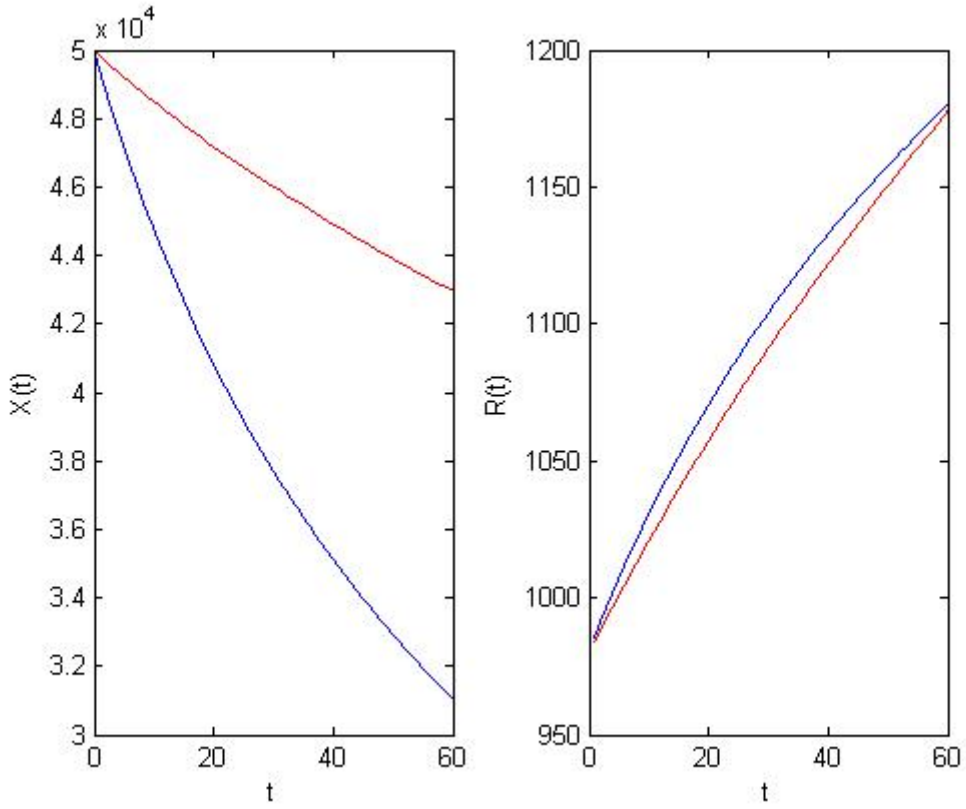
10. Case – The surface area of individual cells in the epithelium does not grow

$$\alpha_i = 0\,, \qquad i = 1,2,3,4$$



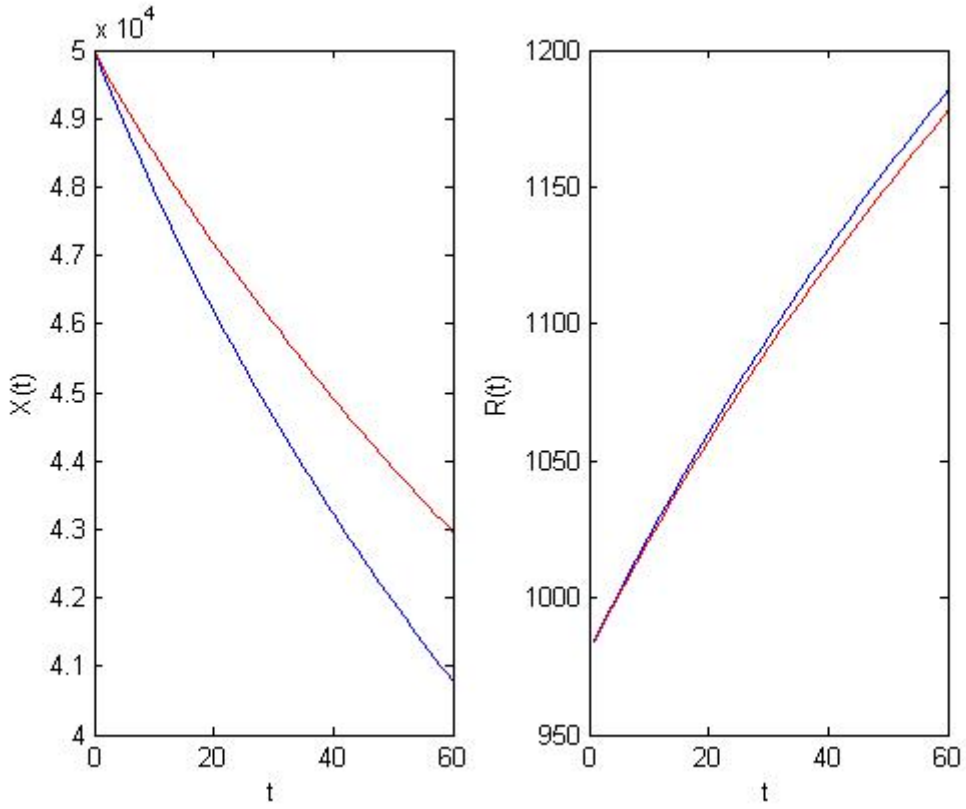
11. Case – the growth rate of individual cells in the epithelium is doubled

$$\alpha_1 = \frac{2}{200} \qquad \alpha_2 = \frac{6}{400} \qquad \alpha_3 = \frac{14}{800} \qquad \alpha_4 = \frac{22}{2400}$$



12. Case – the growth rate of (only) CZ cells is doubled

$$\alpha_1 = \frac{2}{200} \qquad \alpha_2 = \frac{3}{400} \qquad \alpha_3 = \frac{7}{800} \qquad \alpha_4 = \frac{11}{2400}$$


x 10^4
5
4.9
4.8
4.7
4.6
4.5
4.4
4.3
4.2
4.1
4
X(t)
0
20
40
60
t
1200
1150
1100
1050
1000
950
R(t)
0
20
40
60
t