

A GOMPERTZIAN MODEL WITH RANDOM EFFECTS TO CERVICAL CANCER GROWTH

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Abstract. In this paper, a Gompertzian model with random effects is introduced to describe the cervical cancer growth. The parameters values of the mathematical model are estimated via maximum likelihood estimation. We apply 4-stage Runge-Kutta (SRK4) for solving the stochastic model numerically. The efficiency of mathematical model is measured by comparing the simulated result and the clinical data of the cervical cancer growth. Low values of root mean-square error (RMSE) of Gompertzian model with random effect indicate good fits.

Keywords: Gompertzian model, maximum likelihood estimation, 4-stage stochastic Runge-Kutta and cervical cancer

PACS: 87.10.Mn