

1145-34-530

Ismail Abdulrashid* (iza0009@auburn.edu), Department of Mathematics and Statistics, 221 Parker Hall, Auburn University, Auburn, AL 36849, **Tomas Caraballo** (caraball@us.es), Dpto. Ecuaciones Diferenciales y Analisis, Numero, Apdo. de Correos 1160, Sevilla, Spain, and **Xiaoying Han** (xzh0003@auburn.edu), Department of Mathematics and Statistics, 221 Parker Hall, Auburn University, Auburn, AL 36849. *Effect of Delays in Mathematical Models of Cancer Chemotherapy.*

A Mathematical model of chemotherapy cancer treatment is studied where the chemotherapy agent and cells are assumed to follow a predator-prey type relation. In the model, constant delay parameters are introduced to incorporate the time lapsed from the instant the chemotherapy agent is injected to the moment it start to be effective. Existence and uniqueness of non-negative bounded solution is first established. Then both local and Lyapunov stability for all steady states are investigated. In particular, sufficient conditions dependent of the delay parameters under which each steady state is asymptotically stable are constructed. Numerical simulations are presented to illustrate the theoretical results. (Received September 08, 2018)