Boundedness and stability of Leslie–Gower model with Sokol–Howell functional response

ABSTRACT

In this chapter, a three-species model of Leslie–Gower predator–prey food chain model with Sokol–Howell functional response is proposed. The boundedness of the solution of the model is discussed. Local and global stability analyses of the system are carried out. The dynamics of the predator–prey food chain model with Sokol–Howell functional response is investigated theoretically as well as numerically.

Keywords: Food chain; Chaotic; Leslie–Gower; Functional response; Sokol–Howell