

Numerical simulations

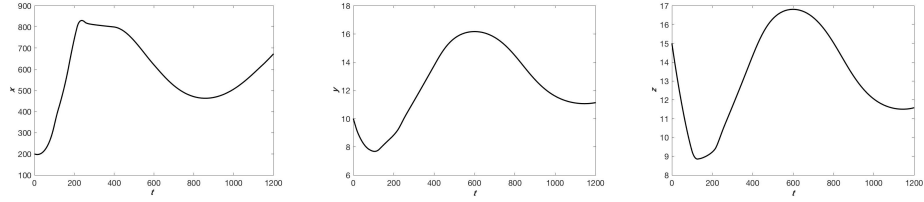


Figure 7: The evolution of the population contingents of aphids (*A. glycines*), the predators (*O. insidiosus*) and the parasitoids (*A. certus*) in time with $x_0 = 200$, $y_0 = 10$ and $z_0 = 15$ of the fuzzy model.

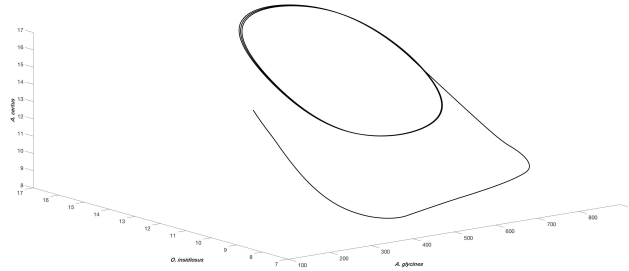


Figure 8: The phase space by the fuzzy system in time of the population of aphids (*A. glycines*), the predators (*O. insidiosus*) and the parasitoids (*A. certus*) in time with $x_0 = 200$, $y_0 = 10$ and $z_0 = 15$.

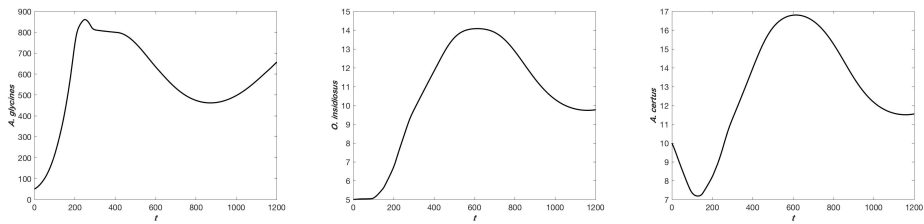


Figure 9: The evolution of the population contingents of aphids (*A. glycines*), the predators (*O. insidiosus*) and the parasitoids (*A. certus*) in time with $x_0 = 50$, $y_0 = 5$ and $z_0 = 10$ of the fuzzy model.

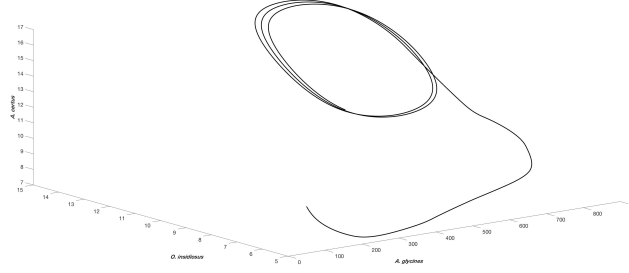


Figure 10: The phase space by the fuzzy system in time of the population of aphids (*A. glycines*), the predators (*O. insidiosus*) and the parasitoids (*A. certus*) in time with $x_0 = 50$, $y_0 = 5$ and $z_0 = 10$.

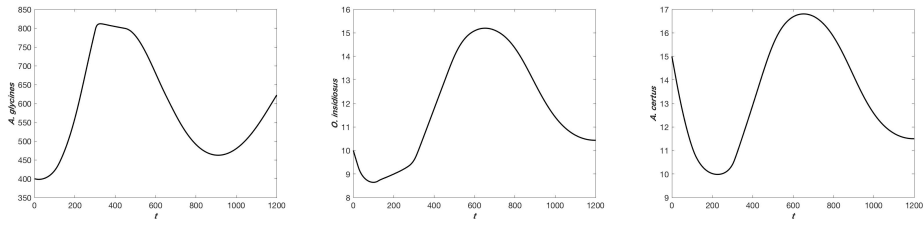


Figure 11: The evolution of the population contingents of aphids (*A. glycines*), the predators (*O. insidiosus*) and the parasitoids (*A. certus*) in time with $x_0 = 400$, $y_0 = 10$ and $z_0 = 15$ of the fuzzy model.

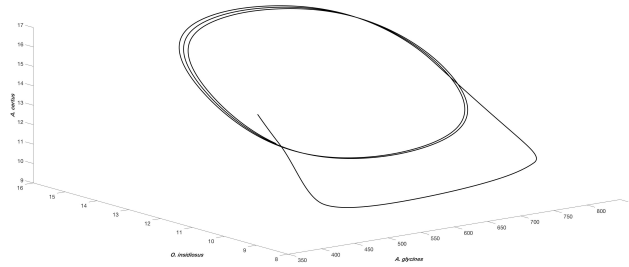


Figure 12: The phase space by the fuzzy system in time of the population of aphids (*A. glycines*), the predators (*O. insidiosus*) and the parasitoids (*A. certus*) in time with $x_0 = 400$, $y_0 = 10$ and $z_0 = 15$.