Publicacions més rellevants de la línia de recerca:

Models en Biologia Matemàtica

Referència: Calsina, À., Cuadrado, S. Stationary solutions of a selection mutation model: the pure mutation case. *Mathematical Models and Methods in Applied Sciences*, **15** (2005), pp. 1091–1117.

Abstract: An integrodifferential equations model for the distribution of individuals with respect to the age at maturity is considered. Mutation is modeled by an integral operator. Results concerning the behaviour of the steady states and their relation to evolutionarily stable strategies when the mutation rate is small are given. The same results are obtained for a (rather) general class of models that include the one mentioned before.

Referència: Calsina, À., Ripoll, J. A general structured model for a sequential hermaphrodite population. *Mathematical Biosciences*, **208** (2007), pp. 393–418.

Abstract: This paper introduces and analyzes a model of sequential hermaphroditism in the framework of continuously structured population models with sexual reproduction. The model is general in the sense that the birth, transition (from one sex to the other) and death processes of the population are given by arbitrary functions according to a biological meaningful hypotheses. The system is reduced to a single equation introducing the intrinsic sex-ratio subspace. The steady states are analyzed and illustrated for several cases. In particular, neglecting the competition for resources we have explicitly found a unique non-trivial equilibrium which is unstable.

Referència: Borges, R., Calsina, À., Cuadrado, S. Equilibria of a cyclin structured cell population model. *Discrete and Continuous Dynamical Systems B*, **11, no 3** (2009), pp. 613–627.

Abstract: A nonlinear cyclin content structured cell population model is considered. The population is divided into two types of cells: proliferative and quiescent. Under suitable hypotheses, existence and uniqueness of a steady state of this model is proved by using positive linear semigroup theory.