Stationary, spatially inhomogenous solutions of reaction-diffusion systems are studied in this thesis. These systems appears in biological models based on a Turing's idea of a diffusion driven instability. In the connection, a global behaviour of bifurcation branches of these stationary solutions is analyzed. The thesis insists on theory of differential equations and on (particularly topological) methods of nonlinear analysis. The existence, as well as non-compatness in one-dimensional space, of a bifurcation branch of general reaction-diffusion system leading to Turing's efekt is proved. Further, a priori estimates of Thomas model are derived. The results tend to theorem, that forall diffusion coefficient from the preestablished set there exists at least one stacionary, spacially nontrivial solution of Thomas model.