

# Study of the influence of the pH media dissolution, degree of polymerization, and degree of swelling of the polymers on the mechanism of release of diltiazem from matrices based on mixtures of chitosan/alginate

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The dissolution profiles of formulations based on mixtures of chitosan/alginate depend on the pH. It is possible to distinguish two processes: (a) a fast kinetic drug release up to 180 min, where the pH value changes from 1.17 to 2.21 and the drug released is controlled by the degree of polymerization and the quantity of chitosan in the formulation; (b) a low kinetic drug release between 210 and 480 min, where the pH value changes from 5.52 to 8.72 and the drug release from the matrix is controlled by the interpolymeric complex. In all formulations the order of release, according to Peppas's model in the range of fast kinetic drug release, was between 0.5 and 1.0. The mechanism of release was non-fickian diffusion, which corresponds to a coupling mechanism of diffusion and relaxation of the polymer.