Iterative operator splitting method for capillary formation model in tumor angiogenesis problem: Analysis and application

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Iterative operator splitting method is used to solve numerically the mathematical model for capillary formation in tumor angiogenesis problem. The method is based on first splitting the complex problem into simpler sub-problems. Then each sub-equation is combined with iterative schemes. The algorithms are obtained by applying the proposed method to the given model problem. The explicit local error bounds are derived to show consistency. We also explained the stability by constructing the stability functions. The obtained numerical results show that iterative splitting method provides high accuracy and efficiency with respect to other classical methods in the literature.

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