

In this Bachelor's thesis we study a numerical solution of the simplified Richards equation which describes flows in porous media. At first we derive Richards equation from the Darcy law and the continuity equation. We solve the 1D variant of this using semi-implicit discretization with respect to time. This problem leads to a solving system of a linear algebraic equations for each time level. We implement this method in the Matlab environment and we perform some numerical experiments for particular porous medium – gravel and clay and we compare obtained results.