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Mikheil Tutberidze* (mikheil.tutberidze@iliauni.edu.ge), Ilia State University, 3/5 Kakutsa Cholokashvili ave., 0162 Tbilisi, Rep of Georgia, and **Soso Pipia** (sosopipia@gmail.com), Delta Systems, 2 Gaprindauli str., 0154 Tbilisi, Rep of Georgia. *On the discrete analogous to one initial-boundary value problem to nonlinear diffusion equation.*

In the presented work the initial-boundary value problem to one nonlinear parabolic equation is considered. For the considered problem the equivalent initial-boundary value problem is obtained to which the difference scheme is constructed. For mentioned difference scheme the theorem of existence of its solution and the theorem of convergence of its solution to the solution of the source problem are proved under some restrictions. The rate of convergence is established and it is equal to $O(\tau + h^2)$. The corresponding numerical experiments were conducted which confirmed the validity of the theorems. (Received September 17, 2013)