CONVERGENCE OF APPROXIMATE SOLUTIONS CONSTRUCTED BY THE FINITE VOLUME METHOD FOR THE MOISTURE TRANSPORT MODEL IN POROUS MEDIA

AKIKO MORIMURA*

Division of Mathematical and Physical Science, Graduate School of Science,
Japan Women's University
2-8-1 Mejirodai, Bunkyoku, Tokyo, 112-8681, Japan
(E-mail: m1716096ma@ug.jwu.ac.jp)

and

TOYOHIKO AIKI

Department of Mathematics, Physics and Computer Science, Faculty of Science,
Japan Women's University
2-8-1 Mejirodai, Bunkyoku, Tokyo, 112-8681, Japan
(E-mail: aikit@fc.jwu.ac.jp)

Abstract. We consider the initial-boundary value problem for a nonlinear parabolic equation in the one-dimensional interval. This problem is motivated by a mathematical model for moisture transport in porous media. We establish the uniqueness of weak solutions to the problem by using the dual equation method. Moreover, we prove the convergence of approximate solutions constructed with the finite volume method.