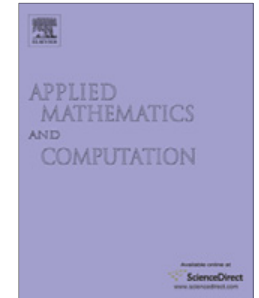




Contents lists available at ScienceDirect

Applied Mathematics and Computation

journal homepage: www.elsevier.com/locate/amc



Soliton solutions of a $BBM(m, n)$ equation with generalized evolution

H. Triki^{a,*}, M.S. Ismail^b

^a Radiation Physics Laboratory, Department of Physics, Faculty of Sciences, Badji Mokhtar University, P.O. Box 12, 23000 Annaba, Algeria

^b Department of Mathematics, College of Science, King Abdulaziz University, Jeddah 21589, Saudi Arabia

ARTICLE INFO

Keywords:

$BBM(m, n)$ equation
Soliton solutions
sech and tanh ansatz

ABSTRACT

We consider a $BBM(m, n)$ equation which is a generalization of the celebrated Benjamin–Bona–Mahony equation with generalized evolution term. By using two solitary wave ansätze in terms of $\text{sech}^p(x)$ and $\text{tanh}^p(x)$ functions, we find exact analytical bright and dark soliton solutions for the considered model. The physical parameters in the soliton solutions are obtained as function of the dependent model coefficients. The conditions of existence of solitons are presented. Note that, it is always useful and desirable to construct exact analytical solutions especially soliton-type envelope for the understanding of most nonlinear physical phenomena.