PERISTALTIC FLOW OF A WILLIAMSON FLUID IN A POROUS CHANNEL WITH SUCTION AND INJECTION

P. HARIPRABAKARAN[1], R. HEMADRI REDDY[2], S. SREENADH[3], R. SARAVANA[1] AND A. KAVITHA[2]

[1] Department of Mathematics, Sreenivasa Institute of Technology and Management Studies, Chittoor-517 127, A.P, India

[2] School of Advanced Sciences, VIT University, Vellore-632014, Tamil Nadu, India

[3] Department of Mathematics, Sri Venkateswara University, Tirupati-517502, A.P, India

Abstract

The Peristaltic transport of a Williamson fluid in a porous channel with suction and injection is investigated. A perturbation technique in terms of small Wessienberg number has been carried out to determine the expressions for the velocity, the stream function, the pressure rise and friction force under long wavelength and low Reynolds number assumptions The effects of different parameters on the pumping characteristic and frictional force are discussed graphically.