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PULSATILE FLOW OF BLOOD IN CAPILLARIES OF SMALL EXPONENTIAL DIVERGENCE WITH VOLUME FRACTION OF MICRO-ORGANISMS.

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Abstract

This paper is concerned with a mathematical analysis of the pulsatile flow of blood with volume fraction of microorganisms in capillaries of small exponential divergence. A micro-continum approach is used to determine the velocity and flow rate distribution in the small diameter tube which taken to diverge exponentially. The velocity expressions for both blood and microorganisms have been obtained in Bessel-Fourier series form, by applying the Laplace and finite Hankel transforms. Further, by assuming blood as couple stress fluid and dusty particles as microorganisms, analytical expressions are obtained for velocities of blood and microorganisms. The changes in the velocity profiles are shown graphically.

Key Words : Blood flow, Dusty flow, Dusty fluid flow.

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