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**Sowmya Muniswamy\*** (sxm6009@louisiana.edu), Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504-1010, and **Aghalaya S. Vatsala**. *Superlinear Convergence via Iterative Methods for Scalar Caputo fractional differential equations with applications*. Preliminary report.

In this work we have developed superlinear convergence method to compute coupled lower and upper solutions to any desired interval for scalar Caputo fractional differential equations of order  $q$ , where  $0 < q < 1$ . This has been achieved via generalized quasilinearization method and generalized monotone method. Further, using the coupled lower and upper solutions computed above, we develop monotone sequences which converge to a unique solution. The rate of convergence of these sequences is superlinear. We provide some numerical results as an application of our theoretical results. (Received September 16, 2013)