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Dhanuja Kasturiratna* (dhanuja@bgnnet.bgsu.edu), Dept. of Mathematics and Statistics, Bowling Green State University, Bowling Green, OH 43403, and **Truc T Nguyen** and **Arjun K Gupta**. *EDF Goodness-of-fit Tests for Testing the Distributional Assumptions in One-way Regression Model*.

In the one-way classification with k treatments, we assume that the data are observed according to the additive model, where the error random variables are independently and identically distributed normally with mean zero and constant variance. Then to test whether a set of observed data are coming from the above regression model, we need to construct a test for testing the hypothesis that the observations of the treatment groups are normally distributed with different means but same variance. In this paper, the location and scale parameters in the distributional assumption of the regression model are eliminated by means of suitable transformations on the original observations. The transformed random variables are then shown to follow Student's t distribution with known parameters under the null hypothesis. The goodness-of-fit tests can then be performed on the transformed variables. The powers of these tests are computed by Monte Carlo method for several alternatives and it shows that the tests are performing well on transformed variables. (Received September 26, 2005)