A.V.V.M. Sri Pushpam College (Autonomous)
Poondi– 613 503, Thanjavur-Dt, Tamilnadu
(Affiliated to Bharathidasan University, Tiruchirappalli – 620 024)

3.7.1 Number of Collaborative activities per year for research/ faculty exchange/ student exchange/ internship/ on –the-job training/ project work

Collaborating Agency:

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Date: 02.06.2016

LINKAGE

For the year 2016-2020

Between

1. Dr. A. VENKATESH
Assistant Professor
PG & Research Department of Mathematics
A.V.V.M Sri Pushpam College (Autonomous),
Poondi – 613 503

&

2. Mr. P. SENTHILKUMAR
Assistant Professor
Department of Mathematics
Dhanalakshmi Srinivasan College of Engg.
Perambalur, Perambalur(Dt.).

Considering the significance of the noble cause for the student community, we have come forward to collaborate with each other to exchange research knowledge, expertise and library facilities to the process of scientific research and education in the field of Mathematics. The parties (mentioned above as 1 & 2.) have had preliminary discussion in this matter and have ascertained areas of broad consensus. The parties now therefore agreed to enter in writing these avenues of consensus, under a flexible linkage, and this project aims to fill the gap between knowledge demand and subject expertise related to the mentioned field.

Joint Responsibilities

- Sharing of library resources, database etc.,
- Joint Publication of research articles, books, magazines, bulletins etc.,
- Jointly organizing conferences, seminars, symposia and workshops.
- Submitting joint proposals for research funding from agencies like UGC, CSIR, DST and TNSCST.

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International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 11 No.1 (2016)

Fuzzy Multiplicative Damage model for the effect of Corticosterone

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Abstract— **The theoretical study of the effect of the Corticosterone responses to restraint stress scores over a one hour period was determined. Formulae of fuzzy three parameter distributions, fuzzy multiplicative damage model and its α-cut sets are presented. Using a fuzzy Multiplicative damage model based on Weibull distribution, Log Pearson 3 distribution, Frechet distribution, Inverse-Gaussian distribution and Gamma distribution, we showed that the effect of the Corticosterone responses to restraint stress is reasonably higher if the termination time increases.**

Keywords— *Fuzzy Multiplicative Damage Model, Distributions, Corticosterone.*

I. INTRODUCTION

Many researches focused on using fuzzy set theory for the fuzzy Multiplicative Damage Model. The most commonly used functions in lifetime data analysis are Renewal or Damage model. Many methods and models in multiplicative damage, assume that all parameters of lifetime density function are precise. But in the real world, randomness and fuzziness are mixed-up in the lifetime of the system [5], [6], [7]. Statistical models are required to predict the mean of different size structures than those tested. In particular, other Probability distributions have been investigated to some extent. First, a general class of statistical models based on cumulative damage is derived, which is useful for accelerated testing situations. New accelerated test models, as well as several existing models, are obtained as special cases of the general model [13], [14].

We explored the contribution of the Corticosterone responsiveness of the rat to restraint stress applied in the morning. It corresponds to the end of inactivity in this nocturnal animal and may serve to prepare the organism for the upcoming period of increased activity. Many findings have demonstrated that the response of the Corticosterone to stress is also under rhythmic control, depending on the time of day the stress occurs [1], [2], [3], [8], [9], [10].

II. NOTATION

λ – Scale parameter
ϕ –Shape parameter
ψ – Location parameter
L – Test termination time
$\overline{\lambda}[\alpha]$ –alpha cut of scale parameter
$\overline{\phi}[\alpha]$ –alpha cut of shape parameter
$\overline{\psi}[\alpha]$ –alpha cut of location parameter
$\overline{M}[\alpha]$ –Mean of Multiplicative Damage Model with fuzzy parameter

III. MATERIALS AND METHODS

Fuzzy Multiplicative Damage Model

The Continuous distribution is widely used in statistical method for life data. Among all statistical techniques it may be in use for engineering analysis with smaller sample sizes than any other method.

A continuous random variable T with three parameter Weibull distribution $W(\phi,\lambda,\psi)$ where $\phi>0$ is the shape parameter, $\lambda>0$ is a scale parameter, $\psi>0$ is a location parameter and has the probability density function

$$f(t)=\phi\lambda^{-\phi}(t-\psi)^{\phi-1}e^{-(\frac{t-\psi}{\lambda})},$$
$$t\geq 0,\lambda\geq 0,\phi\geq 0,\psi\geq 0$$

A continuous random variable T with three parameter Log Pearson 3 distribution $L(\phi,\lambda,\psi)$ where $\phi>0$ is the shape parameter, $\lambda>0$ is a scale parameter, $\psi>0$ is a location parameter and has the probability density function

$$f(t)=\frac{1}{t|\phi|\Gamma\lambda}\frac{(In(t-\psi))^{\lambda-1}}{(\lambda^{\lambda-1})}e^{-(\frac{In(t-\psi)}{\phi})},$$
$$t\geq 0,\lambda\geq 0,\phi\geq 0,\psi\geq 0.$$

International Journal of Pure and Applied Mathematics
Volume 117 No. 5 2017, 127-134
ISSN: 1311-8080 (printed version), ISSN: 1314-3395 (on-line version)
url: http://www.ijpam.eu
Special Issue

ijpam.eu

FUZZY GAMMA PROCESS MODEL FOR THE EFFECT OF CORTICOSTERONE

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Abstract

The Gamma Process model belongs to the class of Cumulative Damage model. As a special case, it reduces to a Gamma Process model with a fuzzy probability distribution may be used to solve it. In this paper, we discuss the plasma corticosterone levels in young male rats subject to calorie restriction using Fuzzy Mean Gamma Process model and Fuzzy Variance Gamma Process Model. This shows that if the test t values increases, the Fuzzy Mean Gamma Process Model and Fuzzy Variance Gamma Process Model are increases for the effect of release of calorie-restricted Corticosterone.

AMS Subject Classification: 94D05, 60A86, 62A86, 62E86