

## CHAPTER 4: AIM AND OBJECTIVES

### 4.1 AIM OF THIS RESEARCH

To provide Jyotisha-based explanations for the hitherto inexplicable variations in bacterial growth grown in batch cultures, using an easily obtainable non-pathogenic strain of bacterium by following-up Dr. Ramesh Rao's PhD work on microbial growth.

### 4.2 OBJECTIVES OF THIS RESEARCH

Objectives are: (1) To understand the possible causes for observed variations in parameters of biological processes during exponential phase growth like growth rate, cell number, doubling time of *E. Coli* growing in batch culture. (2) To correlate these variations with *Navagraha* properties like *Graha Shadbalas* as manifest at the TOFI; (3) To Quantify effects of solar and lunar eclipses on exponential phase growth rates and (4) To make these *Jyotisha*-based experiments repeatable in microbiology practical classes in PU Colleges and Universities.

### 4.3 JUSTIFICATION OF THE STUDY

In order to prove to scientifically trained people that variations of bacterial growth depend on *Jyotisha* properties of each growth curve, identical experiments are performed. Also this present experiments are able make it possible to test principles of Jyotisha (Santhanam, 1984) in college level biology laboratories with easily available non-pathogenic strain of bacteria and verify their validity. While extending prior work (Rao et al., 2013a) to domains where biologists will be able to test principles of *Jyotisha* (Santhanam, 1984), and verify their validity, *Jyotisha* will become a source of novel investigation in many scientific fields. Perspectives on biomedicine will be revolutionized. Medical *Jyotisha* will gain a respected primary role, already accorded to it in Ayurveda (Frawley, 2007). *Jyotisha*, validated through

scientific methods, will help in progressing biological science and medical science. We may be able to optimize and achieve higher success rate of vaccinations in any epidemics, endemics and even during pandemics, if the so validated Jyotisha based protocols are adopted. In case of individualized treatment protocols being adopted by alternative systems of medicine, Jyotisha based individual consultations can help achieve better results.

#### **4.4 HYPOTHESES AND NULL HYPOTHESES**

##### 4.4.1 Hypotheses:

- Variances of exponential phase growth rates of *E. Coli* K-12 MG 1655 will be subject to systematic variations depending on time lag between TOFIs.
- Rates will correlate with *Shadbala* strength of one or more *Grahas*.
- TOFIs are valid *Muhurta* for testing predictions.
- Eclipses influence bacterial growth processes.

##### 4.4.2 Null Hypotheses:

- No systematic changes in variance will be found
- There will be no *Graha Shadbala* correlates with exponential phase growth.
- No valid *Muhurta* exist, not even the Growth Curve's TOFI.
- Eclipses do not influence bacterial growth processes.