

CHAPTER 8: SUMMARY AND CONCLUSIONS

8.1 SUMMARY

These experiments present new understanding of variances in bacterial growth that replace previous ideas (Federoff & Fontana, 2002). The innovative vision of the current study is the relevance it provides to the time, space and consciousness dimension embodied in *Jyotisha* astrology; a subtler dimension than those so far incorporated in modern bioscience. The experiments reported here conducted tests of possible effects of *Saptagrahas* on growth curves of the non-pathogenic strain of *E. Coli* bacterium, K-12 MG 1655. Previous experimental results decrypted effects of *Grahas* on vaccine production (Ramesh Rao & Hankey, 2019). The new results extend those of the earlier experiments which established robust effects of *Navagrahas* on organism growth (Rao et al., 2013a), but which cannot be repeated in laboratories not licensed to grow highly pathogenic organisms, i.e. not in ordinary college teaching laboratories.

In contrast, the new experiments can be repeated in any laboratory. They may thus be extended to create wide acceptance of *Grahas*' influence on bacterial growth experiments and innovative analysis also offer rigorous scientific explanations for the high variances observed in bacterial growth by microbiologists world-wide. More specifically, the *Navagrahas* affect bacterial growth in ways that vary with the TOFI *muhurta*. The data suggested that *Kuja* opposes cellular growth, reducing growth rates during the exponential phase. This discovery extends previous results (Rao et al., 2013a), confirming that *Jyotisha grahas* exert effects on the biology of cells. Eclipses were observed to have similar malefic, life-opposing influences. Although the solar eclipses could not be seen in India; they appeared to act globally (Rao et al., 2014; Ramesh Rao & Hankey, 2019, pp. 53-58). Our results thus support earlier research observation of strong life opposing effects of eclipses, consistent with statements in the

Jyotisha (Santhanam, 1984 Vol. I and Vol, II). In these ways, these experiments provide a new dimension to microbiology, that of Bio-astrology / *Ayur-Jyotisha*.

8.2 IMPLICATIONS OF THE STUDY

Implications for Ayurveda: *Ayurveda*, the Science of Life, emphasizes including dimensions of Space and Time in its practice. Some approaches to Ayurveda recommend a *Jyotisha* consultation prior to treatment. David Frawley (2000; 2007) describes astrological constraints to prescribing Ayurvedic medications and therapies. *Jyotirvaidyam*, astro-medicine is the name for application of principles of *Jyotisha* astrology to medical sciences like Ayurveda.

Implications for Jyotisha Astrology: *Jyotisha* holds that positions of *Nava Grahas* at the starting time of any course of action exert ongoing influences on that project at all subsequent times (Marriages, House building, Travel, starting a new Job, even going to War). *Grahas* support or oppose in ways governed by their inherent properties; also by their initial and continuously updated *Gochara* transit positions in the sky (Frawley, 1992). It appears to exert non-homogeneous effects on a process, later in its development. Time and Space become heterogeneous, complex variables in their influence on biological processes (Rao et al., 2013a; Rao et al. 2013b; Rao et al., 2014; Vegaraju et al., 2019a; Vegaraju et al., 2020a; Vegaraju et al., 2020b). Such an implication contradicts every assumption previously made about time in theoretical physics, and therefore seems opposed to the whole structure of science itself. However, a physical theory has been proposed suggesting how time can gain heterogeneous qualities when influencing complex biological processes in experiments like these (Hankey A., 2005). The theory applies to all phenomena falling under ‘criticality’ in complexity biology, especially phenomena connected to the large variances observed in fractal physiology. Fractions of all such variances may depend on starting time variables. For this reason, the new phenomena need not be considered outside the present body of scientific knowledge.

Implications for Yoga: Yoga practices will influence the physiology differently at different times (Nagarathna, 2001); this can be so, if and only if, the dimension of time is heterogeneous. This is the reason Yoga strongly advised adhering to practices being prescribed depending on the time dimension. *Ayurveda* theory also agrees upon this concept of influence of time dimension on health and diseases. For example, ‘*Yoga Chitta Vritti Nirodhah*’, the Yoga Sutra implying that at times of Vata dosha dominance, i.e. before dawn and sunset, Yoga will best achieve peace of mind, *Chitta-shanti*.

Also, it is noted that during Yoga *Pranayama* / *Dhyana*, the body’s subtle energy, *Sharira Prana*, is enriched by the external, *Loka Prana*, as per the rising sign, *Lagna* (Frawley, 1992; Frawley, 2007). Parts of the body specifically energized for a given *Lagna Rasi*, rising sign, are those governed by that *Rasi* in: (a) the *Kala Purusha*, and (b) the native’s *Janma Kundali*, birth chart (Frawley, 2007).

8.3 APPLICATIONS OF THE STUDY

Iterated success of protocols enables them to be widely adopted in vaccine production. It also suggests that they should be extended, and adopted in teaching and research in multi-disciplinary areas with potential, hitherto unexplored benefits. Potential technological applications from Jyotisha Sastra to industrial microbiological processes was clear to one and all.

A *Jyotisha Muhurta* is a selected starting time, from which detailed predictions of influences can be made concerning all aspects of life including health and disease for later times (Frawley, 2007; Rao et al., 2013a; Rao et al., 2013b; Shriram, 1996). The key to the scientific theory is that all such processes involve regulation from critical points, in complexity biology, ‘criticality’. The theory implies that all biological processes under criticality may be subject to *Jyotisha muhurta* -related effects (Shriram, 1996).

From time immemorial, Jyotish has been guiding society, rooted in the hearts of those interested in it who accept it without hard scientific evidence. Today it is time to remedy this defect. Precious treasures lie in nature's time-space coordinates, where all phenomena may be observed, and which can be boon for mankind, provided they are explored. The growing epidemic of Non-Communicable Diseases makes it urgent to identify new systems of variables. Science only works through sense organ-based understanding. Beyond it, a huge treasury of ancient knowledge awaits application. Jyotisha Offers possible explanations of anomalous variations in *in vivo* biological experiments.

8.4 CONCLUSIONS

The main aim of these experiments was to test the null hypothesis that *time is homogenous*: other than those due to known biorhythms, *systematic variations in production output depending on starting time do not exist*. The observed statistics reject this hypothesis; they point to scientifically interesting information that starting time may have *heterogeneous* effects and such 'Time variables' could add a new dimension to biological experiments in general.

The Aim and Objectives of the thesis were promisingly supported. In all null hypotheses were soundly rejected by the overall results of the experiment(s). The idea that a well-defined starting time can influence the outcome of *purely biological* processes, was supported in every case. Similarly, the hypothesis that starting times traditionally considered auspicious would produce results beneficial to life was supported, as was the hypothesis that those traditionally considered inauspicious would yield results deleterious to life.

This PhD study enables any researcher, teacher, or student of biology attending degree colleges or university **to experimentally test the hypothesis that variances in exponential phase growth rates of bacteria are smaller for smaller times between starting TOFIs.**

Similarly, biologists can now empirically test the validity of *Jyotisha* principles (Santhanam, 1984). *Jyotisha* may become a source for innovative biological teaching and research, and revolutionize perspectives on biomedicine. Medical *Jyotisha* may gain the primary role accorded to it by *Ayurveda*. The idea that Jyotish astrology could make testable predictions was upheld, suggesting that this field requires further investigation for purely biological effects. Use of modern scientific technologies to explore the treasure of ancient knowledge and energy systems should be pursued. The experiments extend our knowledge of how *Jyotisha* influences can affect cell biology. They provide a new dimension to *Ayur-Jyotisha* supported by the astrophysical theory of how such influences are generated – by the influence of quantum correlations associated with each *Navagraha*. This new perspective may stimulate paradigm shifts in both biology and medicine. Traditional wisdom should receive a boost in interest. It should enable more people to live longer, better quality lives by adopting *Jyotisha*, *Ayurveda* and allied sciences.