

# **Contribution of Information Technology (IT) in Conceptualizing the Qur`anic Approach on Programmed Systems of Biology**

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# Focus Points

- The holy Qur`an provides very fundamental information on physical and biological phenomena;
  - We need to understand such information for religious and practical purposes;
- But,
- What is the best method to explain and apply these Qur`anic information?

# The Programmed Systems of Biology

- Biology, is an informational science, as reflected clearly by bioinformatics.
- All biological information are programmed and codified, thus, they are systematic but complex;
- Biological systems are fundamentally composed of two types of information:
  - a) **Genes:** the programmed molecular mechanism which executes the functions of life,
  - b) **Networks of regulatory systems:** interactions which specify how genes are expressed.
- All the biological information is hierarchical in nature, it goes from specific to general, but all are systems:
  - DNA, mRNA, Protein, Protein interactions, Informational pathways, Informational networks, Cells , Tissues or networks of cells, Organism, Populations, Ecology.
  - Complexity of the biological phenomena is based on its hierarchical nature.
- Capturing the flow of information in biological networks is an essential step for understanding of biological phenomena.

# **The Biological Phenomena in the Holy Qur`an**

- Example (1): Qualitative approach
- Example (2): Quantitative approach

## Example (1) Qualitative Approach

• [أَيُّهَا النَّاسُ إِن كُنْتُمْ فِي رَيْبٍ مِّنَ الْبَعْثِ فَإِنَّا خَلَقْنَاكُم مِّن تُّرَابٍ ثُمَّ مِّن نُّطْفَةٍ ثُمَّ مِّن عَلَقَةٍ ثُمَّ مِّن مُّضْغَةٍ مُّخَلَّقَةٍ وَغَيْرِ مُخَلَّقَةٍ لِّنُبَيِّنَ لَكُمْ وَنُقِرُّ فِي الْأَرْحَامِ مَا نَشَاءُ إِلَىٰ أَجَلٍ مُّسَمًّى ثُمَّ نُخْرِجُكُمْ طِفْلًا ثُمَّ لِتَبْلُغُوا أَشُدَّكُمْ وَمِنْكُمْ مَّن يَتُوفَىٰ وَمِنْكُمْ مَّن يَرُدُّ إِلَىٰ أَرْدَلِ الْعُمْرِ لِكَيْلَا يَعْلَمَ مِن بَعْدِ عِلْمٍ شَيْئًا وَتَرَى الْأَرْضَ هَامِدَةً فَإِذَا أَنزَلْنَا عَلَيْهَا الْمَاءَ اهْتَزَّتْ وَرَبَتْ وَأَنْبَتَتْ مِن كُلِّ زَوْجٍ بَهِيجٍ (5)] (الحج)

- *“O mankind, if you are doubting about the Resurrection, then indeed, We have created you from earth, then from a sperm-drop, then from a clinging clot, and then from a chowed flesh, formed and unformed - that We may show you. And We settle in the wombs whom a specified term, then We bring you out as a child, and so that you may reach your maturity. And some of you will die early, and some of will go to old age so that they will lose all knowledge that they gained. And you see the earth lifeless, but when We send down the rain it evaporates and produces every kind of beautiful plants in pair.”*
- **Two phenomena and one rational fact are highlighted in this Qur`anic verse:**
  1. The phenomenon of life (origin of mankind and the process of embryonic growth);
  2. The phenomenon of ageing and death (وَمِنْكُمْ مَّن يَتُوفَىٰ) (وترى الأرض هامة...);
  3. The fact of resurrection and life after death. (this is totally metaphysical fact)
- The final objective of this Qur`anic verse is to prove life after death, based on rational evidence.<sup>5</sup>

## Example (2)

### Quantitative Approach

• [مَثَلُ الَّذِينَ يُنْفِقُونَ أَمْوَالَهُمْ فِي سَبِيلِ اللَّهِ كَمَثَلِ حَبَّةٍ أَنْبَتَتْ سَبْعَ سَنَابِلَ فِي كُلِّ سُنبُلَةٍ مِائَةٌ حَبَّةٌ ۗ وَاللَّهُ يُضَاعِفُ لِمَنْ يَشَاءُ ۗ وَاللَّهُ وَاسِعٌ عَلِيمٌ (261) [البقرة]

- *“The example of those who spend their wealth in the way of Allah is like a seed which grows seven spikes; every spike with hundred pieces / grains. And Allah multiplies for whom He wills. And Allah is all-Encompassing and all-knowing”.*
- **Two facts are highlighted by this Qur`anic verse:**
  - i. The quantitative measurement of moral values (good deeds);
  - ii. Human intellect understands things with both, **finite** and **infinite** amount of information
- These two types of information, i.e. **Finite** and **infinite**, are defined by biologists as (close and open modes of biological complexity and variables)
- Information theory aided by information technology provide the relevant method for practical explanation and application of such Qur`anic verse.

# Analytical View

- Understanding the biological phenomena is important for both religious and practical purposes;
- The biological phenomena, in both qualitative and quantitative approaches, has two levels of understanding:
  1. A simple way for religious purposes,
  2. An advanced way for scientific purposes.
- Systems biology provides useful insights to approach the Qur`anic verses on biological phenomenon;
- The information analysis approach provides the relevant method for modeling and understanding the programmed systems of biology.

## Results & Conclusions

- Information technology, aided by mathematical modeling, provides a unified method to approach the programmed systems of both the physical and biological phenomena. (feedback loops approach)
- Codification of programmed systems of biology has three major implications:
  - i. The ability to explain and understand the biological phenomena;
  - ii. The ability to predict the future directions of the goal-guided processes of biology;
  - iii. Mastering the biological processes, by explanation and prediction, has great implication on community management and development.
- Sufficient data on biological phenomena, mathematical analysis, and effective information technologies are essential to achieve these noble goals.



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# The End

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Thank you for your attention