According to Quantum Perspective Model, are the Numbers of Pi Also Meaningful in Biochemistry?

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Abstract

This article researches whether there is a link between pi numbers and genetic codes. At first, the digits of the pi numbers after the comma are added respectively. Then, the sum of the numbers after the comma are converted to bases in genetic codes. Secondly, the resulting sum corresponds to the nucleotide bases, the results obtained in this way are expressed as nucleotide bases. (A, T, C, G, and U). (A) Adenine, (T) Thymine, (C) Cytosine, (G) Guanine, (U) Uracil. From this point of view, when the first four hundred digits of pi numbers after the comma are calculated [1], the gene sequence is obtained as follows: [TCGATTACTGTTGGGTTAACCGGTAC]. Thirdly, after NCBI (National Biotechnology Information Center) has researched this sequence, the search result is similar to DANIO RERIO (Zebra fish) and even Timema. Fourthly, fish containing Arginine “CGG”, one of the results of the NCBI blasts, is also an example of Zebra fish, a species of bony fish. Zebra fish and human genetic codes have been proven to be very similar to each other. Fifthly, while pi, one of the irrational numbers, should be a non-repetitive sequence, some repetitive gene sequences were found after investigating this sequence [TCGATTACTGTTGGGTTAACCGGTAC] at the NCBI (National Biotechnology Information Center). Just like “TTA”, “TAC” and “GTT”. “Finally, given that Timemas reproduce asexually, not only are the pi numbers irrational numbers, but there is also an abnormal sexual reproduction in Timema. In summary, the relationship between pi numbers and genetic codes can also help in obtaining new clues in Biochemistry.

Key words: Quantum Perspective Model; Danio Rerio; Pi numbers; NCBI (National Biotechnology Information Center); Timema.

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1. Introduction

Before this study, irrational numbers were also studied as Pi numbers [4], golden ratio numbers [6], Euler numbers [7], square root of two numbers, square root of three numbers and square root of five numbers. Let me see the similarities of irrational numbers with respect to genetic sequences. For example, as a result of manually dividing the number twenty-two (22) into seven (7), the series of numbers "428571" that continue continuously after the comma can be achieved. When this sequence of numbers is written in fourteen (14) groups, it can be similar to nucleotide basic codes: ATU. Also, it can be expressed as "UTA" because not only "428571" is cycling numbers but "ATU" genetic codes are also cycling, too. So, it can be expressed as forever UTA’s [Uracil (U), Thymine (T) and Adenine(A)]. (Remember, in RNA polymerase can only read the DNA strand not in the 3’ to 5’ direction but reads 5’ to 3’ direction; that is one REVERSE gene expression) [2]. After searching for this gene sequence "UTA" in NCBI databases, results were obtained on Zebra fish (Danio Rerio) [4]. In other words, atoms with the smallest base structure are taken as a small unit, while they are analyzed from the point of view of the Quantum Perspective Model. Mathematical numbers can also be taken as a unit [4].

2. Methods and discussion

The chemical structures of bases include Carbon(C), Nitrogen (N), Oxygen (O), and Hydrogen (H). Calculation of bases with chemical atoms (See also Table-2). (Ölmez T, 2020)

<table>
<thead>
<tr>
<th>ATOMS /NUCLEOTIDE BASES</th>
<th>C=6</th>
<th>H=1</th>
<th>O=8</th>
<th>N=7</th>
<th>SUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADENINE: C5H5N5</td>
<td>5</td>
<td>5</td>
<td></td>
<td>5</td>
<td>70</td>
</tr>
<tr>
<td>THYMINE: C5H6N2O2</td>
<td>5</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>66</td>
</tr>
<tr>
<td>CYTOSINE: C4H5N3O1</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>64</td>
</tr>
<tr>
<td>GUANINE: C5H5N5O1</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>78</td>
</tr>
<tr>
<td>URACIL : C4H4N2O2</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>58</td>
</tr>
</tbody>
</table>


(A) Adenine: C5H5N5:70;
(T) Thymine: C5H6N2O2:66,
(C) Cytosine: C4H5N3O1:64,
(G) Guanine: C5H5N5O1:78, and
(U) Uracil: C4H4N2O2:58
Also in this research, genetic codes were used as a new formula (Nirenberg and his colleagues 1965) just like as \((A, T, C, G, \text{ and } U)\). \((A)\)Adenine, \((T)\)Thymine, \((C)\)Cytosine, \((G)\)Guanine, \((U)\)Uracil. Before this work, the fourteen group of Pi number can be shown as: Continuous \text{TUTA}'s by [4]. Secondly, another favorite sample of this research is done with velocity of light numbers by Kevser Köklü again [3].This relationship between the numbers and genetic codes is called \text{Quantum Perspective Model} by [4]. Thirdly, in another article with identical cis regulatory elements examined the links between the Golden Ratio numbers [6]. Fourthly, There is a connection between Euler numbers and the Fibonacci series. When the numbers of Euler after the comma were converted from a decimal (10) number-based system to a binary (2) number-based system, they corresponded to the number "55" in the Fibonacci series [8]. After all these studies, pi numbers and the genetic codes are now being investigated in relation to the \text{Quantum Perspective Model}.

3. \text{Calculation of pi numbers and genetic codes}

The first four hundred digits of the number pi after the comma are:

\[
3.1415926535 8979323846 2643383279 5028841971 6939937510 5820974944 \\
5923078164 0628620899 8628034825 3421170679 8214808651 3282306647 \\
0938446095 5058223172 5359408128 4811174502 8410270193 8521105559 \\
6446229489 5493038196 4428810975 6659334461 2847564823 3786783165 \\
2712019091 4564856692 3460348610 4543266482 1339360726 0249141273 \\
7245870066 0631558817 4881520920 9628292540 9171536436 7892590360 \\
0113305305 4882046652 1384146951 9415116094 3305727036 5759591953 \\
0921861173 8193261179 3105118548 0744623799 6274956735 18 [1]
\]

Also, Pi numbers can be shown as: [TCGATTACTGGTTGGTTTAACGGTAC]

The \text{first} group of Pi numbers after the comma:
\[
1+4+1+5+9+2+6+5+3+5+8+9+7=65. \text{ Just like as in Thymine (T):}66.
\]

The \text{second} group of Pi numbers after the comma:
\[
9+3+2+3+8+4+6+2+6+4+3+8+3=64. \text{ Just like as in Cytosine(C):}64
\]

(Lodish H and his colleagues 2018).
The third group of Pi numbers after the comma:

\[2+7+9+5+0+2+8+8+4+1+9+7+1+6+9=78\] Just like as in Guanine (G): 78

The fourth group of Pi numbers after the comma:

\[3+9+9+3+7+5+1+0+5+8+2+0+9+7=68\] Just like as in Adenine (A): 70

The fifth group of Pi numbers after the comma:

\[4+9+4+4+5+9+2+3+0+7+8+1+6+4=66\] Just like as in Thymine (T): 66

The sixth group of Pi numbers after the comma:

\[0+6+2+8+6+2+0+8+9+9+8+6+2=66\] Just like as in Thymine (T): 66

The seventh group of Pi numbers after the comma:

\[8+0+3+4+8+2+5+3+4+2+1+1+7+0+6+7+9=70\] Just like as in Adenine (A): 70

The eighth group of Pi numbers after the comma:

\[8+2+1+4+8+0+8+6+5+1+3+2+8+2+3+0+6=67\] Just like as in Thymine (T): 66

The ninth group of Pi numbers after the comma:

\[6+4+7+0+9+3+8+4+4+6+0+9+5+5=70\] Just like as in Adenine (A): 70

The tenth group of Pi numbers after the comma:

\[0+5+8+2+2+3+1+7+2+5+3+5+9+4+0+8=64\] Just like as in Cytosine (C): 64

The eleventh group of Pi numbers after the comma:

\[1+2+8+4+8+1+1+1+7+4+5+0+2+8+4+1+0+2+7=66\] Just like as in Thymine (T): 66

The twelfth group of Pi numbers after the comma:

\[0+1+9+3+8+5+2+1+1+0+5+5+9+6+4+4+6+2+2=78\] Just like as in Guanine (G): 78

The thirteenth group of Pi numbers after the comma:

\[9+4+8+9+5+4+9+3+0+3+8+1+9+6=78\] Just like as in Guanine (G): 78
The fourteenth group of Pi numbers after the comma:

\[4+4+2+8+8+1+0+9+7+5+6+6+5=65. \text{ Just like as in Thymine (T):66}\]

The fifteenth group of Pi numbers after the comma:

\[9+3+3+4+4+6+1+2+8+4+7+5+6+4=66. \text{ Just like as in Thymine (T):66}\]

The sixteenth group of Pi numbers after the comma:

\[8+2+3+3+7+8+6+7+8+3+1+6+5+2+7+1+2=78. \text{ Just like as in Guanine (G):78}\]

The seventeenth group of Pi numbers after the comma:

\[0+1+9+0+9+1+4+5+6+4+8+5+6+6+9+2+3=82. \text{ Just like as in Guanine (G):78}\]

The eighteenth group of Pi numbers after the comma:

\[4+6+0+3+4+8+6+1+0+4+5+4+1+6+6+4+6+4=66. \text{ Just like as in Thymine (T):66}\]

The nineteenth group of Pi numbers after the comma:

\[8+2+1+3+3+9+3+6+0+7+2+6+0+2+4+9+1=66. \text{ Just like as in Thymine (T):66}\]

The twentieth group of Pi numbers after the comma:

\[4+1+2+7+3+7+2+4+5+8+7+0+0+6+6+0+6+3+1+5=77. \text{ Just like as in Guanine (G):78}\]

The twenty-first group of Pi numbers after the comma:

\[5+8+8+1+7+4+8+8+4+1+5+2+0+9=66. \text{ Just like as in Thymine (T):66}\]

The twenty second group of Pi numbers after the comma:

\[2+0+9+6+2+8+2+9+2+5+4+0+9+1+7=66. \text{ Just like as in Thymine (T):66}\]

The twenty third group of Pi numbers after the comma:

\[1+5+3+6+4+3+6+7+8+9+2+5+9=68. \text{ Just like as in Adenine (A):70}\]

The twenty fourth group of Pi numbers after the comma:

\[0+3+6+0+0+1+1+3+3+0+5+3+0+5+4+8+8+2+0+4+6+6=68. \text{ Just like as in Adenine (A):70}\]
The twenty fifth group of Pi numbers after the comma:

\[5+2+1+3+8+4+1+4+6+9+5+1+9+4+1=64.\] Just like as in Cytosine (C): 64

The twenty sixth group of Pi numbers after the comma:

\[5+1+1+6+0+9+4+3+0+5+7+2+7+0+3+6+5+7+5=79.\] Just like as in Guanine (G): 78

The twenty seventh group of Pi numbers after the comma:

\[9+5+9+1+9+5+3+0+9+2+1+8+6+1+1+7+3=79.\] Just like as in Guanine (G): 78

The twenty eighth group of Pi numbers after the comma:

\[8+1+9+3+2+6+1+1+7+9+3+1+0+5+1+1+8=66.\] Just like as in Thymine (T): 66

The twenty ninth group of Pi numbers after the comma:

\[5+4+8+0+7+4+4+6+2+3+7+9+9=68.\] Just like as in Adenine (A): 70

The eighteenth group of Pi numbers after the comma:

\[6+2+7+4+9+5+6+7+3+5+1+8=63.\] Just like as in Cytosine (C): 64

This sequence is” [TCGATTATACTGGTTGGTTAACGGTAC]. Let me try to explain this sequence with the “Quantum Perspective Model”. For example, The first group of Pi numbers after comma equal to Thymine (T) with the lack of one “1” Hydrogen bonds (H:1). (Remember, See Table-1; (A) Adenine: 70) This result could be the meaning of Pi numbers sequence in groups [TCGATTATACTGGTTGGTTAACGGTAC]. The fourth group of Pi numbers after the comma is regarded as Adenine (A) with the lack of two ”1” Hydrogen bonds (H:1). So, the deviations in the calculation of Pi numbers can be derived from the Adenine (A) - Thymine (T) Hydrogen bonds because of Adenine (A) pairs with Thymine (T) by two hydrogen bonds. Cytosine (C) - Guanine (G) pairs with by three hydrogen bonds [3]. The reason for the lack of hydrogen bonds: Hydrogen bonding is a very versatile attraction [6]. Hydrogen bonds are relatively weak and easily broken by increasing hardness (Farrell R E, 2010).

4. Results

After searching for Pi numbers after comma result in National Biotechnology Information Center (NCBI) databases, some conceptual relationships with bony fish can be found. [14]. Types of bony fishes are based on DANIO RERIO (Zebra fish) and Acanthopagrus latus (bony fishes) (See Figure-2). Types of other living creatures are homo sapiens 19 chromosome, mus musculus (house mouse), Patria miniata (star fish), motacilla alba (birds), Alligator sinensis, viruses, Timema douglasi, Timema poppensis, Timema monikensis, Timema bartmani and Timema cristinae (walking sticks) (See Figure-1). [13] Another interesting result of NCBI is
Timema. The longest known asexual period for Timema [12], including two species that have not engaged in sexual reproduction for a million years. Asexuality in animals is rare, and the Timema-insect lineage that evolved without sex has been proven to have survived for centuries and even Timema reproduces asexually [13]. In summary, the relationship between pi numbers in mathematics and genetic codes in Biochemistry may shed light on new discoveries. At the NCBI (National Biotechnology Information Center), when gene sequences obtained from pi numbers are investigated, a gene sequence is obtained as follows: [TCGATTATACTGGTTGTTTTAACGGTAC].

5. Conclusion

At first, the results of this research can be summarized as taking pi numbers after commas as the chemical structure of genetic codes. Secondly, the Pi digits after the comma can be considered as an indicator of genetic codes. One result of the common features of both Biochemistry and Mathematical Science was the NCBI blast results, which include both bony fish and, in particular [9]. Zebra fish are an excellent favorite sample used in many studies related to Biochemistry and genetics [4]. One of the common NCBI results of Pi numbers and Euler numbers along with the square of the speed of light is Zebra fish. [3] [6]. Aside from this result, the NCBI result for CAAT Box and TATA Box also consists of bony fish, including Zebra fish. [7]. Thirdly, although the Pi number is an irrational number, some repetitive gene sequences were found after researching [TCGATTATACTGGTTGTTTTAACGGTAC] sequence at the NCBI (National Biotechnology Information Center). These are “TTA” [ (T) Thymine, (T) Thymine and (A) Adenine], “TAC” [ (T) Thymine, (A) Adenine and , (C) Cytosine] and “GTT” [ (G) Guanine, (G) Guanine and (T) Thymine]. These three triplets, which are triplets like codons, are interesting because repetitive gene sequences that shouldn't be in irrational numbers could shed light on new research between mathematics and Biochemistry. Let alone this triplets, none of this triplet’s are in the Universal Genetic Code Table except [“CGG” (ARGININE)] [18]. Since the human body does not produce arginine on its own, it must be taken from outside. Arginine, which is among the essential amino acids, is a molecule that can be obtained from fish nutrition, which plays a critical role in health, such as immune function [17]. Also, Arginine has greater potential in terms of its shown anti-aging benefits [16] and it plays an important role in blood pressure regulation [19]. So not only arginine is obtained from fish, but also one of the NCBI blast results includes both one of the bony fish, DANIO RERIO. Finally, the calculation results of pi numbers with genetic codes [especially (A) Adenine, (T) Thymine, (C) Cytosine, (G) Guanine and (U) Uracil] are related to both Biochemistry and Mathematics. In short, the digits of pi after the comma can be attributed not only to numbers in Mathematics, but also to genetic codes in Biochemistry.

References

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[6]. Ölmez T. Is there an aesthetics in golden ratio as regards to the common cis-regulatory elements versus to atomic numbers of elements with respect to Quantum perspective model? Neurology and Neuroscience Reports 2020; Vol.3. DOI: 10.15761/NNR.1000119


[8]. Ölmez T. Is there a similarity between Fibonacci sequence and Euler’s number with respect to quantum perspective model? Global Journal of Science Frontier Research 2020; Vol.20, Issue: 9


The figures

Figure 1: The NCBI (National Biotechnology Information Center) Result for Nucleotide Sequence “TCGATTATACTGGTTGGTTGTTAACGGTAC” [14].
Figure 2: The NCBI (National Biotechnology Information Center) Result Blast Tree View Widget for “TCGATTATACGTGGTTGTGTAACCGTAC” Nucleotide Sequence [14].