



## FRACTALS IN SOUND PATTERNS OF SANSKRIT MANTRAS AND ITS USE IN HEALING THERAPY

### Orthopaedics

**Dr. Tanisha Dutta** Assistant Professor at PIADS, Nagpur.

**Akshat Gupta\*** High school student, LVIS \*Corresponding Author

### ABSTRACT

It has long been noted that particular sounds enhance the body's ability to heal from imbalances associated with anxiety to nerve disorders and cancer. Recent advances in western medicine show how sound affects us at the cellular level and heal. Beneficial effects are caused by listening to music, toning, humming, chanting. Specific healing effects from sound therapies have been studied and documented by scientists, doctors, physicists, musicians, and modern-day yogis. This knowledge is inherent and was passed down through the millennia.

### KEYWORDS

Fractals, Healing, Mantras, Sound pattern, Sanskrit

#### Introduction

Vedas mention that, "In the beginning was Brahm, with whom was the vibration of sound and the vibration was Brahm". Ancient Indian rishis uttered secret syllables before administering lifesaving treatments and medicine. Edgar Cayce, the great modern-day mystic called sound 'The Medicine of the Future'. The benefits of ultrasound in modern medicine are duly noted for a number of things, including the use in healing muscular injuries.

The oldest Hindu scripture, Vedas, consist of various Mantric hymns, that were invented by great seers for the welfare of the society. In his meditation, the 5th Century BC seer, Panini heard the 14 sounds from Shiva's drum, and they awakened in him perfect knowledge of language. Besides the myth, these 14 sounds formed the vowels and consonants of Sanskrit.

"The structure of Paninian Grammar is nothing but a computer program", stated Charles Babbage, who conceived the first automatic digital computer. Computational Linguistics requires formal rules for analysis and generation of language, which is present in Sanskrit. Panini lived between 520 and 460 BC. In his treatise, he presented the processes of phonology, morphology and syntax for Sanskrit language. His production rules for deriving complex structures and sentences resemble those of modern computer languages.

In the Siva Sutras, Panini discussed the concepts of the phoneme, morpheme and the root. These phonemes serve special roles in the morphology of Sanskrit, Andrae referred to throughout the text. Panini worked not only on the theory of the phoneme but also on phonetic alternations. One ancient story that is relevant here. Lord Siva produced 14 sound sequences from his Damaru in the course of his Cosmic Dance. These sounds formed the foundations for later developments of all beats of dance, all notes of music and all phonemes of speech. It is said that these sounds appeared in Panini's mind and inspired him to set them down as the Siva Sutras at the head of his great work, the Ashtadhyay.

The Vedas are the only scriptures in the world that have their hymns addressed to the Divine in the form of Mantras. Vedic literature elucidates the use of sound as a spiritual tool. It considers sound as the pre-eminent means for attaining higher, spiritual consciousness.

The word mantra can be broken into, "Man" meaning mind, and "tra" meaning release. It is a combination of sounds meant to release the mind from all the anxieties of material life. The sounds of specific mantras chanting causes the left and right hemispheres of the brain to synchronize. Chanting a mantra with correct frequency of sound and correct intent, helps oxygenate the brain, reduce our heart rate, blood pressure and assist in creating calm brainwave activity.

The power or energy itself came from one ultimate source. For example, nasal sound - Mmmm humming boosts the production of Nitric oxide (NO) in the body. Many mantras which end with Mmmm, produce Nitric oxide, which helps 50 trillion cells in the body to communicate with each other. Nitric Oxide is an important regulator

and mediator of numerous processes in the nervous, immune, and cardiovascular systems. Stems and Flowers cut from their original plants can survive for longer time if supplied with Nitric Oxide.

The Rishis took particular care to relate each of these Aksharas (alphabets) to their antecedent subtle forms or powers that regulated their purpose and usage. The collective chanting of beej mantras can induce cosmic impact. Each beej mantra (seed of origin) comes with such configurations of phonemes which can deliver one from ignorance, illusions, and devils.

The idea behind chanting is that everything in the universe has a vibration. When a mantra is chanted in rhythmic tone in certain sound patterns, it creates a melodious neuro-linguistic effect on the body as well as focusses the mind. The phonetics of Sanskrit strike the palate at multiple reflex points stimulating energy that awakes in active parts of the brain. This activates circuits through the body that slow down the nervous system. (Mishra, 2019)

#### Sanskrit – A scientific language:

"The Sanskrit language, whatever be its antiquity, is of wonderful structure; more perfect than the Greek, more copious than the Latin, and more exquisitely refined than either"—Sir William Jones (1675-1749)

Sanskrit is perhaps the oldest and the most prolific language known to mankind. The Sanskrit alphabets and phonology are most scientific innovations based on human physiology. It is widely believed that Sanskrit mantras, when recited in combination with the sound vibrations, have a specific effect on the mind and the psyche of the individual.

Looking at the science, perfection and near mathematical precision of the language, one can easily surmise that it could have been invented only by super-humans. Given its complexity arising due to its perfection and elaborate system of grammar, Sanskrit is not an easy language to learn. Sanskrit is rich in vocabulary, phonology, grammar, and syntax, which remains undiluted to this day despite its antiquity.

Sanskrit script consists of 52 letters in total, 16 vowels and 36 consonants, all directly linked to human physiology. These 52 letters have never been tweaked or altered and have been constant since the beginning, retaining its unbroken tradition for word formation and pronunciation. I know no other language in the world which has 16 basic sounds and 36 consonants.

Sanskrit, therefore, provides the most elaborate and scientific structure and phonetics compared to any other language in the world. (English has only six basic sounds; a, e, i, o, u). Precisely for this reason, Sanskrit is called the mathematical language of the world.

#### Origin of Alphabets:

50 of the 52 Sanskrit alphabets have their origin directly from the chakras in human body. Vishuddh Chakra (विशुद्ध चक्र) with its 16 petals have given birth to 16 vowels as given below.



Anahat Chakra (अनादित चक्र) with its twelve petals gave birth to first 12 consonants in Sanskrit alphabet as stated below.



Manipur Chakra (मनीपुर चक्र) with its 10 petals has given birth to next 10 consonants in Sanskrit alphabet.

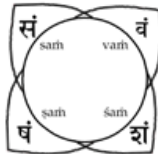


vadhistan Chakra (स्वाधिष्ठान चक्र) with its 6 petals has given birth to the next 6 consonants in Sanskrit alphabet.

Muladhar Chakra (मूलाधार चक्र) with its 4 petals has given birth to next 4 consonants as given below.



Muladhar Chakra (मूलाधार चक्र) with its 4 petals has given birth to next 4 consonants as given below.



Ajna Chakra (आज्ञा चक्र) with its two petals has given birth to next two consonants: हं क्षं. The last two consonants ञ and झ are compound consonants. (Gupta, 2020)

**Phonetics:**

To provide the precision of expression and sound, the Sanskrit has an elaborate system of phonetics which is once again deeply connected to human physiology. Depending on the use of different mouth organs, both the vowels and the consonants have been divided into five categories namely; gutturals, palatals, labials, cerebrals, and dentals. The group of gutturals is followed by palatal and so on in a systematic way. Gutturals are pronounced with the help of throat, palatals with the help of jaw, cerebrals with the tongue hitting the roof of the mouth, dentals with the help of teeth and the labials are pronounced with the help of lips. In addition, the vowels have also been divided into short and long. No other language with such a scientific pattern of alphabets. The word mantra comes from the ancient Sanskrit language. A mantra is a combination of transcendental sounds meant to release the mind from all the anxieties of material life. One gets miraculous advantages

by making use of the causal energy of Mantra. The mantra plays the role of getting transformed into potential energy. The mantra could even be a meaningless sound, the frequency of which helps transforms the user to a new level of consciousness.

A Fractal is a pattern that repeats forever, and every part of the Fractal, regardless of how zoomed in, or zoomed out you are, it looks very similar to the whole image.

**The fractal formula:**

It is one of the most amazing discoveries in the realm of mathematics that not only does the simple equation  $Z_{n+1} = Z_n^2 + C$  create the infinitely complex Mandelbrot Set, but we can also find the same iconic shape in the patterns created by many other equations.

**Fractal dimension:**

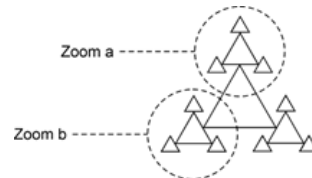
In mathematics, more specifically in fractal geometry, a fractal dimension is a ratio providing a statistical index of complexity comparing how detail in a pattern (strictly speaking, a fractal pattern) changes with the scale at which it is measured. ... One non-trivial example is the fractal dimension of a Koch snowflake.

**Fractal Structures in Texts**

In 1980 G. Altman made a formula for quantifying of the Menzerath's law. Menzerath-Altmann law says there is a relation between size of a construct and size of its constituents. A system like a language has different levels or constructs, such as syllables, words, syntactic constructions, clauses, sentences and semantic constructs. According to Menzerath-Altmann law, when the size of a construct increases, the size of its constituent's decreases, and this holds at every level. Thus, a certain kind of self-similarity exists for each level. Fractal dimension can be calculated for each level. The fractal dimension of a given text is the average value of fractal dimension of levels.

**Fractalness**

Fractalness' is a term derived from the term 'fractal', which is used in mathematical geometric studies. A fractal according to the English dictionary is "a mathematically conceived curve such that any small part of it if enlarged, has the same statistical character as the original". An illustration of the aforementioned may give more clarity. In figure 1 both the parts in zoom a and in zoom b have the same statistical character as the original. Any part taken in closer look would be similar to the whole. Figure 1 shows thus a strict fractal.



**Fractalness in Mantras**

It is always challenging to explicate meanings of expressions of an abstract oriented language in a more concrete oriented language. Sanskrit being abstract oriented as a whole, it is in its own nevertheless compound of more concrete and more abstract expressions. Of these 'aum', 'tat' and 'sat' are three of the most abstract expressions, with the first being without doubt the uttermost abstract one. These three abstract expressions then are taken together in the highly abstract mantra 'aum tat sat'. Thus shall 'aum tat sat' be contemplated here only from one specific angle. And this is the angle of fractalness. It shall be brought to the fore that the Sanskrit mantra 'aum tat sat' is fractal in nature.

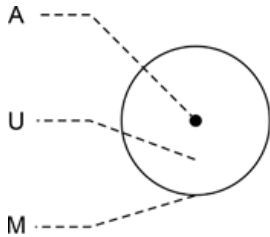
'Aum tat sat' is a mantra or a phrase that is often uttered and written at the end of Hindu recitations and scriptures. The mantra consists of three words or sounds, being obviously 'aum', 'tat' and 'sat'. We shall have a closer look at these sounds separately, after which they shall be taken back into the whole of the mantra.

**Aum**

'Aum' without doubt is the uttermost abstract Sanskrit expressions" is thought to be a way to realise Brahman becomes clear with the understanding that to the Vedantin 'aum' is the verbal expression of Brahman (formless God).

As mentioned 'aum' consist of the three sounds 'a', 'u' and 'm'. These each have their own significance. 'A' in 'aum' is the deepest sound,

arising from the back of the throat. It is 'a' the sound which is resounded closest to the centre and the heart of a human being. The 'm' as in 'aum' is resounded the furthest away from this centre. It is a nasal bilabial sound.<sup>20</sup> With both lips closed and resounding through the nose is 'm' the highest and most peripheral sound. The 'u' as in 'aum' then holds an intermediate position.<sup>21</sup> It is resounded between the throat and the nose with both lips' half closed. So, when the sound 'aum' is resounded does a movement take place from a human's centre to his periphery. Here it should be noted that a Vedantin shall acknowledge the *prā* ava to arise indeed from the centre and the heart, because this is considered to be the place where Brahman immanent dwells.<sup>22</sup> The 'a' then can be seen as the aspect of spirit in man, the 'm' as the aspect of man's matter, and the 'u' as the intermediate factor. Figure 3 shows the above described idea figured.



**Tat**

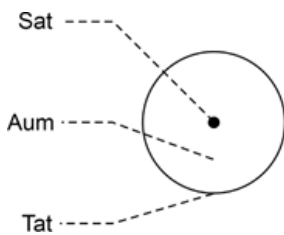
'Tat' infers to the outermost periphery of manifestation. 'Tat' in Vedantic thought is considered to be the transcendent Brahman. Or differently phrased is 'tat' considered to be Brahman's external aspect.

**Sat**

'sat' infers to the innermost centre of manifestation. Now the innermost centre of manifestation is to the Vedantin also Brahman itself, as we have seen. And this reveals 'sat' then as denoting Brahman's internal aspect.

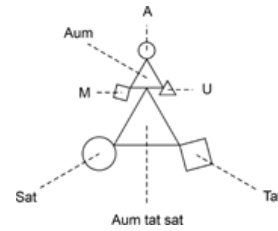
**Aum Tat Sat**

When the three separate meanings of 'aum', 'tat' and 'sat' are taken back into the whole of the mantra 'aum tat sat', and the mantra is figured, then a similar figure arises as the one that arose when 'aum' was contemplated and figured. This time 'sat' is the centre, 'tat' is the periphery and 'aum' is the intermediate factor. That 'aum' itself as a whole takes the role of the intermediate factor can be understood in the consideration that 'aum' as an utterance moves from the centre towards the periphery, stretching itself thus between both. Where 'aum' is the whole with regard to its parts 'a', 'u' and 'm', there is it the intermediate part of 'aum tat sat'. This explicated it is easy to see how the figure of 'aum tat sat' is similar to that of 'aum'. Figure 4 shows an image similar to that of figure 3.



**The Fractalness of 'Aum Tat Sat'**

The fractalness of 'aum tat sat' has already come to the fore in the previous paragraph. The figure of 'aum' is similar to that of 'aum tat sat', and with 'aum' being part of 'aum tat sat' a fractalness occurs. The question is how this fractalness can be made visual in a figure. To come to an answer a closer look must be given to the different parts of 'aum tat sat' and their internal relations. These different parts enumerated are 'a', 'u', 'm', 'aum', 'tat' and 'sat' (comprising the whole 'aum tat sat'). Every one of these different parts needs to be figured with a separate symbol, as needs 'aum tat sat' as a whole. However with 'a' and 'sat' both inferring to Brahman immanent, 'u' and 'aum' both inferring to Brahman mediant, and 'm' and 'tat' both inferring to Brahman transcendent, a similar symbol for each of the aforementioned pairs needs to be chosen. And conclusively must the symbol for 'aum' be comprised of the symbols for 'a', 'u' and 'm', just as the symbol for 'aum tat sat' must be comprised of the symbols for 'aum', 'tat' and 'sat'. Taking the above prescriptions in consideration a figure such as figure 5 may be drawn.



There Brahman immanent is symbolized with a circle, Brahman mediant with a triangle and Brahman transcendent with a square. The triangle also serves to connect the parts, bringing them into a whole. Thus the triangle symbolizing 'aum' indicates not only 'aum' as inferring Brahman mediant, but also indicates it being comprised of the linked parts 'a', 'u' and 'm'. The same goes for the triangle symbolizing 'aum tat sat', bringing the parts 'aum', 'tat' and 'sat' back into their wholeness. 'A' and 'sat' are both drawn as a circle, indicating them as inferring Brahman immanent. And 'm' and 'tat' are drawn each as a square indicating them as inferring Brahman transcendent.

Now this figure 5 can be recognized as resembling the earlier drawn figure 2. That figure was drawn to show the fractalness of a non-strict fractal. For the figure was attested to be considered by researchers as such a fractal. And thus must figure 5, figuring 'aum tat sat', too be considered to be a fractal. And this consideration then completes the present contemplation. 'Aum tat sat' is (a) fractal. (<https://www.arvindus.com/publications/201107191.html>, 2011)

**Fractals in Music**

The fractal aspect of different kinds of music was analysed in keeping with the time domain. The fractal dimension of a great number of different music's (180 scores) is calculated by the Variation method. By using an analysis of variance, it is shown that fractal dimension helps discriminate different categories of music. Then, we used an original statistical technique based on the Bootstrap assumption to find a time window in which fractal dimension reaches a high power of music discrimination. The best discrimination is obtained between 1/44100 and 16/44100 Hertz. We admit that to distinguish some different aspects of music well, the high information quantity is obtained in the high frequency domain. By calculating fractal dimension with the ANAM method, it was statistically proven that fractal dimension could distinguish different kinds of music very well: music's could be classified by their fractal dimensions.

In one of the research work, some of the prevailing classifications of Indian songs were quantified by measuring their fractal dimension. Samples were collected from three categories: Classical, Semiclassical, and Light. After appropriate processing, the samples were converted into time series datasets and their fractal dimension was computed. Based on these results, an online method for classification is offered.

From the results of data analysis of the research experiments done, we can see that Classical songs have higher values of Fractional Dimension (well above three) than Light songs (below three) while fractional dimension from Semi classical songs lie in between the other two types. (Alain, 2000)

**Various outcomes on research on effect of Music on Human Body**

Since, the time of Lord Rayleigh, i.e., the beginning of the 19th century, there has been a lot of interest in studying the effect of music on the human system. It is only recently that interest has developed in extending this work to Mantras also.

Stigsbyet al. (1981) conducted a study on the effect of mantra meditation on the electroencephalograms of experienced mediators. The results were inconclusive. Seer and Raeburn 4 conducted a similar study on the effect of meditation training on hypertension. Here also, the study showed modest reductions in blood pressure, but the results were again inconclusive.

Tellest al. (1994) conducted experiments on the effect of OM meditation on Middle Latency Auditory Evoked Potentials of 18 male subjects between the ages of 25 and 45 years, 9 of who had more than 10 years of experience in OM meditation and the other 9 had no experience at all. The results indicated that the experimental group

showed an increase in the peak amplitude of Na wave, whereas there was a significant decrease in the control group. They extended this study in 1996, with the experimental group meditating on OM and the control group meditating on a neutral word one. Mental repetition of OM showed a significant decrease in skin resistance level of the experimental group as against the control group. There was also a reduction in the heart rate and the rate of breathing.

Takahashiet al. (1999) conducted a pilot study on the effect of low frequency noise on human body vibration. They showed that the low frequency noise affects the health of individuals depending on the structure of the body. The frequency range used by them was from 20 to 50 Hz, which is quite below the frequency of a normal human voice.

Heisnam Jina Deviet al. (2004) conducted experiments to study signal characteristics of mantra sound patterns. They showed that OM (A-U-M) signal has two segments, starting with O and gradually tapering off to M. From the point of view of intonation and the shape and the cavity of the mouth, the sound O is in between the sounds A and U. The male voices show 9 sub harmonics in the region of O and 2 in the region of M. In the case of the female voices, these are 4 for O and 1 for M. Thus, it is clearly seen that the sound pattern for O in all cases lies between those for A and U. ((Ladhake, 2009)

The analysis results of the research done, proved that chanting OM attains the steadiness of mind. A professional recording of the Divine sound chanting OM was obtained and used for scientific investigations. During the OM chanting, our mind focuses on the repetition of OM chanting. Moreover, this practice helps us to reach steadiness. The frequency of the chant signal achieves steadiness following a continuous chanting. This specifies the attainment of the steadiness in the mind of an OM chanting person. This provides calm and peace to the stressed mind. The mental stress of a person gets reduced while the mind reaches steadiness. In addition, concentration also improves.

Our voice is our natural healers. The highest form of healing vibrations using the voice lies in toning and chanting. These have the greater power than singing, because composers do not attempt to focus on their unfolding patterns of sound to have definite therapeutic effects on those singing the sounds, much less on the listeners. The limitation of singing in this respect is that music is continuously changing its pattern – the rising and falling of the vocal lines, the ever changing rhythms and texts.

On the other hand in case of chanting sound formulas are extremely concentrated and repetitive allowing them to enter deeply in to singer's body, mind and spirit as well as leaving impact on listener's as well. In Sanskrit each letter creates certain level of vibration creating particular resonances. Every word is a sound formulae and mantras can be considered as a mathematical equation in text form using which might create certain physical and chemical reactions leading to healing biological impact in our body. Also, it's been observed that regular consistent pattern in chanting these mantras (mathematical equations) can create healing impact on our body.

Relevant to therapeutic sound as a process that can open up a higher state of consciousness beyond our usual state is the scientific research that has established four states of consciousness based on the measurement of our brainwaves.

#### Four states of consciousness are:

**1) Beta:** This is state of daily lives where there is little potential of creative and thinking work. It is very active when we are in state of tension and fear.

**2) Alpha:** This is next level to Beta and first stage of meditation. At this state brainwaves creates a state in which we are both alert and relaxed and begins to open up for creative and artistic work.

**3) Gamma:** This is deepest state of meditation where one might slip in to sleep. If this state of silence and peace is reached and maintained for even few minutes, the potential for release of creative energy is enormous.

**4) Delta:** These waves are the slowest and place us in deep dreamless sleep in which we find fundamental rest.

Through the application of healing vibrations in the form of toning, chanting and over toning in specific patterns may be fractals as well, our state of consciousness can be shifted from one mode to another.

#### Inference:

From above detailed studies we can try to incur that "Sanskrit" is a phonetic language chanting Sanskrit mantras like 'Aum' and 'Aum Tat Sat' forms fractional patterns and their regular chanting provides many health benefits.

Now, having learnt about existence of patterns or fractal patterns in Sanskrit language, mantras of Sanskrit language, sound and music we can also correlate that if mantras are being chanted in a specific pattern can actually yield miraculous results in areas related to human health.

We recommend that similar kind of studies should also be done for other powerful Mantras like "Gayatri Mantra" and other to understand the link between fractals, sound patterns and Mantras. There is another interesting research work that can be carry forward is to develop new customised fractal patterns in chants of Mantras to enhance the positive effects of Mantras on human bodies as similar kind of work is already in progress in field of music

#### REFERENCES:

1. <https://www.arvindus.com/publications/201107191.html>
2. [https://www.researchgate.net/publication/228637527\\_Classification\\_of\\_Different\\_Indian\\_Songs\\_Based\\_on\\_Fractal\\_Analysis](https://www.researchgate.net/publication/228637527_Classification_of_Different_Indian_Songs_Based_on_Fractal_Analysis)
3. [https://www.researchgate.net/publication/223535440\\_Fractal\\_dimension\\_and\\_classification\\_of\\_music](https://www.researchgate.net/publication/223535440_Fractal_dimension_and_classification_of_music)
4. [https://www.google.com/search?q=fractals+in+sanskrit+alphabet&source=lmns&bih=625&biw=1349&rlz=1C1GCEU\\_enIN907IN907&hl=en&sa=X&ved=2ahUKEwIN4qGyxsLxAhWgtUsFhTQDOoQ\\_AUoAHOeCAEQAA](https://www.google.com/search?q=fractals+in+sanskrit+alphabet&source=lmns&bih=625&biw=1349&rlz=1C1GCEU_enIN907IN907&hl=en&sa=X&ved=2ahUKEwIN4qGyxsLxAhWgtUsFhTQDOoQ_AUoAHOeCAEQAA)
5. [https://books.google.co.in/books?hl=en&lr=&id=YpkJonBRdpUC&oi=fnd&pg=PP10&dq=why+chanting+of+mantras+follows+specific+pattern&ots=wIiYkQjLp&sig=EtHguY0g5-D9Rf5Cn3T\\_uCYpeME&redir\\_esc=y#v=onepage&q&f=false](https://books.google.co.in/books?hl=en&lr=&id=YpkJonBRdpUC&oi=fnd&pg=PP10&dq=why+chanting+of+mantras+follows+specific+pattern&ots=wIiYkQjLp&sig=EtHguY0g5-D9Rf5Cn3T_uCYpeME&redir_esc=y#v=onepage&q&f=false)
6. <https://scialert.net/fulltext/amp.php?doi=ij.2009.781.785>
7. [https://www.researchgate.net/publication/228637527\\_Classification\\_of\\_Different\\_Indian\\_Songs\\_Based\\_on\\_Fractal\\_Analysis](https://www.researchgate.net/publication/228637527_Classification_of_Different_Indian_Songs_Based_on_Fractal_Analysis)
8. [https://www.researchgate.net/publication/223535440\\_Fractal\\_dimension\\_and\\_classification\\_of\\_music](https://www.researchgate.net/publication/223535440_Fractal_dimension_and_classification_of_music)
9. <https://grahamhancock.com/carrd3/>
10. <https://sessionville.com/articles/exploring-audio-fractals>
11. [https://www.researchgate.net/publication/286177653\\_Higuchi\\_Fractal\\_Dimension\\_Analysis\\_of\\_EEG\\_Signal\\_Before\\_and\\_After\\_OM\\_Chanting\\_to\\_Observe\\_Overall\\_Effect\\_on\\_Brain](https://www.researchgate.net/publication/286177653_Higuchi_Fractal_Dimension_Analysis_of_EEG_Signal_Before_and_After_OM_Chanting_to_Observe_Overall_Effect_on_Brain)
12. [http://eprints.ma.man.ac.uk/1548/1/covered/MIMS\\_ep2010\\_103.pdf](http://eprints.ma.man.ac.uk/1548/1/covered/MIMS_ep2010_103.pdf)
13. [https://books.google.co.in/books?hl=en&lr=&id=YpkJonBRdpUC&oi=fnd&pg=PP10&dq=why+chanting+of+mantras+follows+specific+pattern&ots=wIiYkQjLp&sig=EtHguY0g5-D9Rf5Cn3T\\_uCYpeME&redir\\_esc=y#v=onepage&q&f=false](https://books.google.co.in/books?hl=en&lr=&id=YpkJonBRdpUC&oi=fnd&pg=PP10&dq=why+chanting+of+mantras+follows+specific+pattern&ots=wIiYkQjLp&sig=EtHguY0g5-D9Rf5Cn3T_uCYpeME&redir_esc=y#v=onepage&q&f=false)