VOL- X | ISSUE- VIII | AUGUST | 2023 | PEER REVIEW e-JOURNAL | IMPACT FACTOR 7.367 | ISSN 2349-638x

A Review on: Design of Digital Drugs for enhancement of Milk production in Cattle and Buffaloes

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Abstract:

Due to a hectic schedule, heavy workload, and numerous other factors, stress, anxiety, and insomnia are currently the most common problems that people face. As a result, many find it difficult to focus on their work. As a result, human performance is declining. The use of meditation may be one method to do this. Utilising the Brainwave Entrainment (BWE) is an additional method. Brain entrainment, audiovisual stimulation (AVS), audiovisual entrainment (AVE), photic stimulation, and auditory entrainment are other names for brainwave entrainment. With the use of the audacity software tools, this system was created to produce auditory beat stimuli (Binaural Beats), check, and analyse.

Keywords Brainwave Entrainment (BWE), brain entrainment, audiovisual stimulation (AVS), audiovisual entrainment (AVE).

Introduction

According to D. S. Jog, there are two categories of sound. There are two types of sound: melodic sound and noise. Speech is one sort of sound that is neither either a musical sound nor a noise. Ordered sound, on the other hand, is known as melodic sound, whilst disordered sound is known as sounds and these types of sound are quite complicated. Specific feelings and attitudes can be stimulated by musical sound power [1].

The most complex organ is the human brain. The human brain is one of those organs that has been researched by a variety of professionals, including doctors, engineers, philosophers, neuroscientists, and medical professionals [2][4]. Understanding the human brain has become required as a result, and the impact of auditory tone on the brain can be used to influence the condition of brainwaves. According to Charles R. Noback, Norman L. Strominger, and colleagues in 2005, the cerebrum, brainstem, and cerebellum are the three main divisions of the brain. The diencephalon and two cerebral hemispheres are both parts of the cerebrum. Midbrain, Pons, and Medulla make up the brainstem [3].

The human brain has millions of neurons, and electrical activity between these neurons results in modest signal voltages that are referred to as brainwaves [5].

Scientists have classified these wave patterns and there are many different waveforms associated with many different types of electrical mental activity. An electroencephalogram (EEG) is a technology that can be use to record electrical activity of the brain at the different electrode site [2][5]. EEG signals are often studied for determining the relationship between the frequencies of electrical activity of the brain and corresponding mental state, emotional as well as cognitive state [6].

I.Brainwave Entrainment (AWE)

Brainwave entrainment is the term for the electrical reaction of the brain to rhythmic sensory stimuli, such as pulses of music or light [2]. The term "cortical evoked response" refers to the electrical charge that the brain produces whenever it receives stimulus from the hearing, the eyes, or occasionally another sense. These electrical reactions travel throughout the brain and manifest as what you hear and see. Sensitive electrodes affixed to the scalp may be used to measure this kind of activity [2].

II.Binaural Beats

As per Gerald Oster, a German experimenter named as H. W. Dove in 1839, has discovered

binaural beats[6][7]. To get better perception of binaural beats one can use stereophonic earphones [7]. When the carrier frequency is around 440 Hz (Hertz), the perception of binaural beats may be improved [6]. when all frequencies above 1000 Hz entirely disappear. Utilise low pitch frequencies to create the binaural beats [6]. There have been some studies that suggest tones with frequencies up to almost 1500 Hz, or beats, can also be sensed [6][7]. Otherwise, determining the beats scale could be challenging. Additionally, if the tones, which are employed to create beats, have frequencies below roughly 90 Hz, the subject could end up becoming confused [6].

As seen in figure 1.1, each oscillator has slightly different frequencies adjusted separately to each ear in order to produce binaural beats. It also has 6Hz binaural beats.

Binaural beats are a subjective perception, prepared by preparing nearby frequencies for each ear individually, and have the following characteristics. It is crucial. In the medial superior olivary nuclei, the processing need both ears to work together, present when carrier tones are lower than 1000 Hz and beat frequencies are low [8].

III.**Brainwave Frequency**

An electroencephalogram (EEG) is a technology to record electrical activity of the brain at the different electrode site [2][5]. EEG signals frequently studied for determining the relationship between the frequencies of electrical activity of the brain and corresponding mental state, emotional as well as cognitive state [2].

IV.Experimental Analysis Bases on the following:

i. The following situations must match in order to analyse the binaural beats: i. Noise may seem as sporadic peaks, but that is not what we are searching for; rather, what we are looking for are peaks that remain constant, or peaks.

ii. Some researchers employed 1500 Hz as the carrier frequency, which is required to create binaural beats and cannot be greater than 1000 Hz.

iii.The range of preset frequencies for which the difference between carrier frequencies must match rainwave frequency such as delta, alpha, beta, theta, and gamma.

brainwave frequency such as delta, alpha, beta,theta, and gamma.

Table 1.1: Comparison of Brainwave Frequency Range

Type	Frequency Range	Usually associated with
Delta	0 – 4 Hz	• **Deep sleep, unconsciousness** • **Affect adults or babies slow sleep** • **Deep dreamless sleep**
Theta	4 – 8 Hz	• **Young children, drowsiness or arousal in older children and adults** • **Memory, deep relaxation, daydreaming** • **Light sleep, creativity, insight** • **Random eye movement sleep, Drowsiness**
Alpha	8 – 12 Hz	• **Relaxed / reflected, closing the eyes** • **Relaxed attention** • **Relax state, daydreaming, light form of meditation** • **Calm, peaceful yet alert state** • **Relaxation, Awake but relaxed** • **Relaxed, alert state of consciousness**
Beta	12 – 30 Hz	• **Alert/ working, active, busy or anxious thinking, active concentration** • **Thinking, concentration, information processing** • **Normal, waking consciousness** • **Focusing, and (high beta) for intensity or anxiety** • **Alert, working, active, busy, anxious thinking and active concentration** • **Concentration, alertness, arousal, cognition, and higher level** • **beta for anxiety**
Gamma	**30 – 100 Hz**	• **Certain cognitive or motor functions stress** • **High-level information processing**

Conclusion

In this study work, we compare the mental states corresponding to various brainwave frequencies. This publication also provided a conceptual explanation of how to create binaural beats. Our understanding of the subjective nature of

the binaural beat (BB) effect came from analysing numerous research articles. Later in this work, some points were made to support the binaural beats.

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