A placebo-controlled *in-vivo* study of the effect of four musical imponderabilia on the growth of *Calendula officinalis* plants

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I, Philippie Fourie, declare that this dissertation represents my own work in both conception and execution.

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ABSTRACT

This study is based on the creation of 4 new musical imponderabilia remedies: Jazz 30 CH, Rock 30 CH, Pop 30 CH and Classical 30 CH, and seeks to demonstrate whether such imponderabilia remedies are able to induce biological changes as an indicator of potential future utility in a human homeopathic pathogenetic trial.

The study was conducted on 50 *Calendula officinalis* plants, randomly divided into 5 groups of 10 plants each. In group 2 plants respectively received one of 5 'remedies', viz. Jazz 30 CH , Rock 30 CH remedy, Pop 30 CH remedy, Classical 30 CH remedy and an indistinguishable placebo of spring water. Prior to administration of the allocated remedy, we had 1 week of stabilising the plants were afforded a one-week period of stabilisation, followed by a 6 week administration phase.

The remedies were prepared by placing a container of spring water in front of a speaker. through which a compilation of the respective genre of music was played for 19 hours and 30 minutes. The container of spring water thus exposed was identified as the respective 'mother tincture', which was subsequently converted to a 30 CH homeopathic potency. The administration potency contained only 1% alcohol.

The 50 *Calendula officinalis* plants received 50 ml of spring water every second day in the stabilisation week, after which each plant received their specific remedy or placebo on Mondays, Wednesdays and Fridays for a period of 6 weeks. 50 ml of the respective 'remedy' or placebo was administered to each plant.

Objective measures of growth were taken each week. The measures of growth employed in this study included: the stem length, stem diameter and leaf number. The plants were measured once planted, at the end of the stabilisation week (week 0), and at the end of each of the 6 weeks of administration. The results were analysed with The R Project for Statistical Computing to determine the Analysis of variance. A comparison of growth metrics was conducted to determine the influence of the respective remedy on growth of *Calendula officinalis* plants.

DEDICATION

This research is dedicated to my parents

Johan and Drieka Fourie

My parents have their own company and they could not always be there for me but they gave me an example that no money could ever buy.

The examples they gave me are:

1. To always keep my head up no matter the circumstances.
2. To always give my very best even if you don't want to.
3. To stand for what is right even if I stand alone.
4. And to work myself into better circumstances.

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“Many ancient cultures around the world worship sound because sound was deemed to be divine in origin. Is it possible that the reason why our ancestors talked about divine sound is not necessary because they referring to music but that sound has this incredible power to do certain things….. But it’s just we’ve lost this knowledge over the millennia?”

(Ancient Aliens, 2017).

DEFINITION OF TERMS

Homoeopathy: Is a holistic form of medicine based on the law that likes cures likes. This means any substance that can cause a disease can be used to cure that same disease if a very minute dose has been administrated. This holistic medicine was developed by Samuel Hahnemann in 1796 (Swayne, 2000).

Imponderabilia: Is a kingdom of homoeopathic medicine made from a source that contains no active material (Swayne, 2000). Imponderabilia homoeopathic remedies are remedies that are produced from something that exists, but cannot be measured or calculated. There is no way to fully determine its quality or quantity, although it has an influence on living organisms. Currently, the homoeopathic field has 124 imponderable remedies, which includes: Luna (moonlight), Sol (sunlight), Electricitas (electricity), Magnetis Polus Arcticus (magnet of north pole), Magnetis Polus Australis (magnet of south pole), X-rays and various colour remedies made from visible light frequencies (LTD, 2020).

Placebo: This term refers to any medicine or remedy that contains no therapeutic or medicinal properties. A placebo can be a mirror image of the true substance (the real medication) where it will smell, look and taste like the true substance, however, has none of the medicinal aspects. The placebo can be given during experiments or clinical trials to the control group where the data is compared to the test group that has received the true medicinal substance (Stedman, 2006 c).

Potency: This term have 3 definitions: 1) The strength of a remedy to cause an effect, 2) The therapeutic power of a homoeopathic remedy achieved by potentisation and

dynamization and 3) The measurement for homoeopathic remedy scale, decimal scale, centesimal scale the LM scale (Swayne, 2000).

German homeopathic pharmacopoeia: Is a book published by the German health ministry that indicates how homoeopaths must go forth in a legal manner to produce a potentised remedies. This GHP gives a clear indication how the remedy source must be identified and from there scientifically prepared into the potentised remedy.

Immersion: Refers to the process by which an object is submerged into a liquid. In homoeopathy one could submerge a gemstone as a means to prepare an Immersion remedy (Swayne, 2000).

LIST OF ACRONYMS

Acronym	Full term
CH	Centesimal Hannemanian
X	Decimal
M	Millesimal
LM	50 millesimal
ROH	Alcohol/Ethanol
BGB	Bijou Glass Bottle
AGB	Amber Glass Bottle
PIP	Pipette
Aq	Water
BMO	By Means Of
GHP	German Homeopathic Pharmacopoeia
HPT	Homoeopathic Pathogenetic Trial
HRI	Homeopathy Research Institute
Hz	Hertz
KHz	Kilohertz

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CHAPTER ONE

1.1 INTRODUCTION

The importance of music has not yet been fully explored by modern day science, even though we are able to trace music back to prehistoric eras, where music or sounds were produced by the animals to communicate or attract mates. Sound is recorded as vibrations travelling through the air. These vibrations are picked up by the ear and create an emotional response such happiness, sadness or anger (Hartmann, 2013).

The effect of music on living organisms cannot be fully measured through scientific methodology. In musical therapy, music is used to treat a specific pathology by listening to or creating music by singing or using musical instruments. Musical therapy was used after war to help soldiers recover from post-traumatic stress disorder. Musical therapy has also been studied in plants which exhibited differing growth rates under specific music frequencies.

Homoeopathy is a holistic form of medicine that mainly use animals, plants and minerals as a source of remedy production. The remedies can be categorised into the following kingdoms: Animal kingdom, Plant kingdom, Mineral kingdom, Sarcodes, Nosodes and Imponderabilia.

Imponderabilia remedies are produced from substances/entities that cannot be measured or captured fully through scientific means. These may include entities such as the sun, moon, electricity or various colour light frequencies.

This study aimed to capture the essence of musical frequencies of different genres in order to create imponderable remedies through the homoeopathic procedure of potentization. Future Homoeopathic Pathogenetic Trials (HPT) could possibly be conducted on human participants to further this study and add it to the collection and knowledge of homoeopathic imponderable remedies.

1.2 THE AIM OF THE STUDY

To investigate the effect of different musical imponderabilia remedies of the same potency on the growth of the *Calendula officinalis* plant.

1.3 OBJECTIVES

The determine the effect of the respective imponderabilia remedies on objective measures of growth of *Calendula officinalis* plants.

1.3.1 To determine the effect of musical imponderabilia remedies on the stem height of *Calendula officinalis* plants.

1.3.2 To determine the effect of musical imponderabilia remedies on the stem diameter of *Calendula officinalis* plants.

1.3.3 To determine the effect of imponderabilia remedies on the number of leaves of *Calendula officinalis* plants.

1.3.3 To analyse and compare the differences existing between the respective musical genres and placebo on the growth rate of *Calendula officinalis* plants.

1.4 THE LIMITATIONS OF THE STUDY

This study does not:

- Intend to explain the nature of a homoeopathic remedy produced according to the standard methodology.
- Intend to compare the outcome of this study with presumed biological effects of imponderabilia remedies with this study's remedies.

1.5 THE HYPOTHESIS

The four music imponderabilia remedies will affect the growth of *Calendula officinalis* plants in discernible ways.

CHAPTER TWO

2.1 INTRODUCTION

Since the ‘Big Bang’, sound has been all around us and Pythagoras has claimed that various solar bodies produce their own sound. Sound can be defined as waves that travel through the air, however, it can also travel through gas, liquid and solid objects. As these waves are travelling through the air, the human ear transfers the wave from the external ear to the inner ear. Here, the tympanic membrane creates a vibration that stimulates the auditory nerve which produces information about the sound that is transferred to the brain and interpreted (Moore, et al., 2013).

The interpretation of the sound can be divided into categories, depending on the type of sound, as follows:

- Audible - sounds between 20 Hertz (Hz) and 20 Kilohertz (KHz) and is detectable by the human ear.
- Inaudible - sounds above 20 KHz and below 20 Hz that is undetectable by the human ear.
- Unpleasant - sounds that produce a negative emotional response such as frustration or anger.
- Pleasant - sounds that produce a positive emotional response such as laughing or happiness.
- Soft and loud noises
- Music

(Idrobo-Ávila, et al., 2018)

The early human population used music and sound as a form of communication when language had not yet been developed. This music provided a gateway into enhancing the survival of early humans because with better communication, came better strategies in hunting, building and protecting, for example. As time went on, languages were developed and humans started to produce sound to express their emotions through music by means of their voice or instruments (CMUSE, 2018). This expression of emotions through music can be seen as the early building blocks of musical therapy.

Musical therapy was scientifically introduced by Everett Gaston between the 1940 and 1960. Musical therapy can be broken down by its two words, music and therapy. Music can be defined as a process by which one organises sound in a specific pattern to produce a melody. This process requires musical instruments, which includes the human voice. The melody can then be placed in a specific genre according to the tone, rhythm, progression and speed (Merriam-Webster, 2020 a). Therapy can be defined as a process by which one treats a pathology through a specific scientific method (Stedman, 2006 f). In conclusion musical therapy can be define as a process by which a qualified practitioner uses music as a form of treatment for a certain pathology. This therapy is used by either listening to music or creating music by means of an instrument.

Homoeopathy is a holistic form of medicine developed by Samuel Hahnemann in the late 1790's. Homoeopathy works on the principle that 'likes cure likes' which means that if a substance causes disease in an individual, it can also be used to cure the

same disease in another individual. Hahnemann realised that a very small dose is required to produce cure, known as the infinitesimal dose. The remedies can be made of any substance and are categorised according to their sources as follows:

- Animal kingdom
- Plant kingdom
- Mineral kingdom
- Sarcodes
- Nosodes
- Imponderabilia

The word imponderabilia arrived from the word *Imponderabolis*, which means weightless. Imponderable remedies are produced from a source that does not contain any material value (Merriam-Webster, 2020 b). This means that the substance does exist but there is currently no scientific method in place to determines its true value. *Magnetis poli ambo* was the first produced and proven imponderabilia remedy in 1833 by Hahnemann (Hahnemann, 1921).

Agrohomeopathy is a new branch into homeopathy and agriculture. It is a method of treating plants with homeopathic remedies, which is a more natural approach and does not produce side effects on the plants or the consumer of the plant. Once a homoeopathic remedy is administrated to a plant, the plant will respond in one of three manners: 1) growth is promoted, 2) growth is stunted or 3) growth is decreased.

2.2 SOUND EFFECT ON ALL LIVING ORGANISMS

2.2.1 THE EFFECT OF SOUND ON EARLY MAN AND RELIGION

Sound in the form of music has been used by multiple cultures and religions as communication between people as well as communication with the spiritual realm. Music does not only provide a gateway between man and god, but it also provides a form of relaxation for humans and their emotions.

The ancient Ashanti culture from Ghana used music as a form of communication to the god's for healing. The god who liked the sound of music they made, will send his healing power through the music to heal the sick. The ancient Egyptians also believed that music was a form of communication to the gods. The main god of Egypt, Osiris used music to domesticate the ancient Egyptians. The god of Harmony, Horus was the son of Osiris (Elson, 2007). In Hampi, India, there are musical pillars at the Vittala Temple that are struck with the fingers to produce sounds or music as a form of prayer to Lord Vishnu (Kumara & Raj, 2008).

In the Christian bible one could read the following ‘’[14] The Spirit of the LORD had left Saul, and an evil spirit from the LORD was terrifying him. [15] “It's an evil spirit from God that's frightening you,” Saul's officials told him. [16] “Your Majesty, let us go and look for someone who is good at playing the harp. He can play for you whenever the evil spirit from God bothers you, and you'll feel better’’. They found David and the following happened ‘’ [23] Whenever the evil spirit from God bothered Saul, David would play his

harp. Saul would relax and feel better, and the evil spirit would go away.'' (Samuel, 2001).

2.2.2 THE EFFECT OF MUSICAL THERAPY ON HUMAN EMOTIONS

Musical therapy has shown much influence on the human psyche and emotional state. Various studies have been conducted throughout history to look at how music effects humans and how different genres of music have an influence on the mental and emotional state of humans.

In 1789, a professional dancer fell ill with typhoid fever, resulting in a loss of voice. The dancer was cured through the sound of a violinist that repeatedly played for his recovery(Unsigned, 1789).

In a veteran hospital after world war II, a doctor known as Simon studied the effect of musical therapy on 25 volunteering, mentally disturbed war heroes. The music was played during lunch every Sunday and the war heroes were allowed to play musical instruments as well. The study resulted in a vast improvement in the mental and emotional well-being of the patients who reported to have less anxiety and depression (Podolsky, 1954). This study gave rise to in the introduction of musical therapy in the treatment of Post-Traumatic Stress Disorder in war heroes. In 2013, A similar study was again conducted on war heroes who had undergone shock therapy, through much resistance, which saw positive mental and emotional changes after the introduction of music therapy (Spencer, 2013).

In 2010 a study was conducted on 54 volunteers who were exposed to 10 minutes of different musical genres. 19 volunteers were exposed to classical music, 17 were exposed to pop music and 17 were expose to heavy metal (rock) music. All the participants underwent a pre and post-testing on their emotional state and mood. The classical and pop participants expressed a more relaxed and calm mood, whilst the heavy metal participants expressed a more nervous, insecure and tense mood (Rea, et al., 2010).

In a comparative study between runners listening to western pop music and runners not listening to any music, showed a positive effect of music on the physical activity after a running session. The effect of pop music on runners during an intensive running session showed an increased in physical activity after a running session compared to those who did not listen to the music (Yamasaki, et al., 2012).

2.2.3 THE EFFECT OF MUSICAL THERAPY ON PLANTS

In 1969 Retallack started to experiment with music on plants. The plants used were corn, squash, petunias, zinnias and marigold (*Calendula officinalis*). The plants were exposed to rock, classic and jazz music genres. The rock music had two effects: the plants were either growing very tall or the growth was stunted. The *Calendula officinalis* plant died within two weeks of exposure to rock music. However, the plants exposed to the classical and jazz music were responding positively.

Retallack's experiment was considered invalid due to the fact that radio signals were also playing a role in the experiment. Retallack then recorder the music and played it to the plants. She found that the plants leaned away from the speaker that played rock music and leaned towards the speaker that played the classical music. More than 50% of the plants exposed to jazz music also leaned towards the speaker. At the same time, Retallack also conducted experiments on the evaporation rate of distilled water through exposure to the same music genres. Beakers full of water were placed near the speakers while the plant experiment was conducted. The 'silent' rate of water evaporation was recorded between 14 and 17 ml over period of time. The jazz and classic rate of water evaporation was between 20 and 25 ml. The rock rate of water evaporation was between 55 and 59 ml (Tompkins & Bird, 1973).

In a comparative study between silence, Western pop music and Buddhist pirith on the growth of *Codariocalyx motorius* plants*,* the researcher found that Buddhist pirith and pop music had a significant effect on the growth of these plants in comparison to the silent group of plants (Munasinghe, et al., 2018).

In 2014 a study was done on 4 genres of music with a silence placebo group on 30 *Rosa chinesis* (rose) plants. All the plants were from the same mother plant and were divided into 5 groups. The 5 groups were either exposed to rock, Indian classic, Western classic or Vedic chants music. The rock music group of plants showed a lower average growth rate than all the other plants. The rock music group also showed the thinnest diameter of flowers and the least number of flowers (Chivukula &

Ramaswamy, 2014). This is an indication that rock music stuns the growth of plants in different forms.

In 2015 and 2016 similar tests were done by El-Rahman to determine the effect of jazz music on the common Sage plant. He played jazz and classical music to plants for two hours a day and compared this to a control group. The main focus was to determine the effect of the music on plant height, number of branches, weight of dried herb, oil percentage and leaf pigments. In this study the classical music average on all of these were significantly higher, whereas the results of the jazz music were much lower in comparison (El-Rahman, 2017).

A more recent study was conducted in 2017 by Maria Cristea. This study was divided into 3 groups: control, classic and rock groups. The study was conducted over 6 weeks with the exposure of music to wheat plants. Over the course of the 6 weeks, the plants had vast difference in growth length and colour. At the end of the 6 weeks, the control group average length was 14 centimetres (cm), the classical group average length was 20 cm and the rock group average length was 10 cm (Iacob, et al., 2017). This evidence shows that music does influence plant growth.

2.3 HOMOEOPATHIC PROVING POSOLOGY

2.3.1 HOMOEOPATHY

Homoeopathy was developed by Samuel Hahnemann in 1796. Homoeopathy works on the principle that ‘likes cure likes’ which means that if a substance causes disease

in an individual, it can also be used to cure the same disease in another individual. Hahnemann realised that a very small dose is required to produce cure, known as the infinitesimal dose. He thus developed three remedy scales: the decimal (X) scale, centesimal (CH) scale, M (millesimal) scale and the 50 millesimal (LM) scale. The various potencies and remedies act on a mental, emotional and physical level in a holistic approach.

Based on the way the remedy acts, Hahnemann also discovered the law of individuality. This means that every person is different mentally, emotionally and physically. Due to this, every patient receives an individual remedy that is different to another patient, even though they might present with the same disease manifestation. The more symptoms the person has that corresponds to a particular remedy, the higher the potency administration.

Homoeopathic remedies are made through the process of potentisation. This process involves converting any substance into a mother tincture, which is the crude starting point of a remedy. From the mother tincture, the remedy is converted into the required potency. The mother tincture is a pharmaceutically prepared drug solution that is prepared by means of (BMO) extraction, trituration, dilution and succussion. Extraction is the process by which the active substance is extracted from the plant, animal or mineral source and placed in an alcohol water mixture for four to six weeks in order to break down and absorb the active ingredients. Trituration is the process in which an insoluble substance is broken down into smaller particles, through continuous grinding, which releases its active ingredients. The trituration or mother tincture is now able to

be ‘potentized’ through a series of dilutions and succussion. Succussion is the vigorous shaking of a liquid potency in order to introduce energy into the remedy and allow the substance to fully submerge into the liquid (water and alcohol mixture). During this process, the nanoparticles of the water expand and allow the remedy to penetrate into its make-up. This theory has recently been explored as the ‘memory of water’ (Pollack, 2013).

The three scales of remedies can either fall inside or outside of the nanoparticles (nanomedicine) criteria. Any substance with a molecular value below Avogadro’s number (6.022×10^{-23}) qualify for this criteria. The decimal scale is a 1 in 10 dilution which means that the original active substance value is reduced by 1/10. The centesimal scale is a 1 in 100 dilution, thus its active substance value is reduced by 1/100, the millesimal (M) scale is the same as the centesimal scale the M just refers to the fact that its diluted and succussed 1 000 times. The LM scale is a 1 in 50 000 dilution etc. (Malik, 2015). The remedies that do not fall into the nanoparticle criteria are as follow (Rajendran, 2017):

- Decimal scale 1 X – 23 X
- Centesimal scale 1 CH – 11 CH
- LM scale LM 1 – 4

2.3.2 REMEDY NANOPARTICLES BIOLOGICAL EFFECT

Nanoparticles are a concept that is not yet fully understood. A nanoparticle is around 100 times larger than an atom. Nanoparticles are able to act as a vehicle by which an active ingredient can be delivered.

In 2018, a conference was held in London to evaluate the various research experiments, which looked to prove that water does contain a ‘memory’ and that nanoparticles do exist (Homeopathy, 2018). In one study, the remedy Aurum metallicum (gold) was made by means of trituration and succussions into a high dilution of 30 CH and 200 CH. A remedy that is diluted beyond a 12 CH enters the realm of the super-Avogadro dilution (ultra-high dilution), because the active substance in no longer present in the remedy. The study concluded through electron microscopy that nanoparticles did remain inside the remedies that were diluted beyond Avogadro’s number (Bellare, 2018).

In a study performed by Lakshmanan, 4 albino rat groups were exposed to a daily dose of an ultra-high remedy dilution of Lycopodium clavatum for 60 days, where two groups served as a control. The study focused on LM 1, 6 CH, 30 CH and 1M potency. This remedy is indicated in erectile dysfunction in humans. The results showed an increase in rat testosterone levels and improved spermatogenic status. The study confirmed that the remedy, at various potencies, was significant and that the ultra-high dilutions did outperform the lower dilutions (Lakshmanan, 2015).

Silvana studied the treatment of mice, infected with Trypanosoma cruzi, with Lycopodium clavatum and Phosphorus remedies at a potency of 13 CH. This is still considered a high dilution. The remedies showed significant values compared to the placebo group. The conclusion was made that the remedy groups enhanced the mice's immune systems, protected their colons and decreased their inflammation levels (Silvana Marques de Araújo, 2015).

An in-vivo study of ultra-high diluted remedies on breast cancer cells was performed by Kindelmann in 2015. The remedies used were*:* Phosphorus, Carcinosin, Phytolacca decandra, Thuja occidentalis, Asterias rubens, Carbo animalis, Agaricus phalloides and Sabal serrulate at 30 CH and 200 CH potencies, in comparison to a control water group. After statistical analysis, Carcinosin and Phytolacca decandra showed significant effects and values on the inhibition of breast cancer cells (Kindelmann, 2015).

2.3.3 HOMOEOPATHIC PATHOGENETIC TRIAL

2.3.3.1 INTRODUCTION

A Homoeopathic Pathogenetic Trial (HPT) is also known by the common name of a "Proving". Hahnemann stated that in order to fully understand a remedy substance, one must first test it on a healthy individual to provoke the symptoms that will treat a diseased individual presenting with similar symptoms, as in 'like cures like'. This process of evaluating a new substance is known as a 'proving' (Krauss, 2017).

"Provings are homoeopathy's gift to the homoeopath, a gift we received once we embrace the unknown" (Sherr, 1994).

The symptoms produced in a proving are analysed and collected together to form the remedy indications in a book known as the homoeopathic 'materia medica'. The materia medica originates from the word pharmacology and is a collection of proven remedies with their therapeutic indications on a mental, general, emotional and physical level (Eizayga, 1991). A proving doesn't only have to be conducted on human volunteers, but can also be used to research the effects of a remedy or specific potency of a remedy on animals, insects and plants as well (Banerjee, 2006).

2.3.3.2 SAMPLE SIZE

According to the European Council for Classical Homeopathy, a sample size should consist of 10 to 20 volunteers per study, with a placebo group between 10% to 30%. The council stipulates that the sample group must receive two to three different potencies to cover the entire picture of the remedy (ECCH Council, 2009). Sherr states that 15 to 20 people per study is adequate for a proving to gain sufficient results for a complete remedy picture (1994). Vithoulkas, on the other hand believes that 100 provers is necessary with a placebo group of 25% (Vithoulkas, 1998). Hahnemann stated that a proving should consist of a sample size between 12 and 50 people (De Schepper, 2001).

2.3.3.3 PLACEBO GROUP

A placebo in modern day medicine is referred to as any substance that does not contain any active ingredients (Stedman, 2006 c). A placebo provides an accurate measuring group against the experimental group. In a homoeopathic proving, the physician or researcher will give all the participants a remedy to take over a course of days to weeks, depending on the study. The placebo in the proving will look, smell and taste the same as the remedy given.

The participants are randomly allocated into either placebo (the control group) or remedy (the active group) groups and given the ‘same’ remedy to be taken and tested with no prior knowledge on the substance or to which group they belong to. By doing this, the mind will cause an effect or illusion of healing or symptoms during the study, which can be used to eliminate false symptoms recorded and compare those to the real symptoms produced by the active group. This is referred to as ‘the placebo effect’ (Mosby, 2016).

2.3.3.4 POTENCY

Hahnemann soon realised that the high doses of Western medicine administrated to the sick were causing harmful side effects because of the high concentration of the crude substance being administered. Hahnemann experimented with various methods of dilution until he created the homoeopathic potency scale and correct procedures to make different remedies. By developing this scale, Hahnemann discovered that a patient only requires a single dose of the remedy chosen in order to bring about healing

and that the more diluted a substance becomes, the stronger, more deeper acting and longer it will effect a patient for (Vithoulkas, 2016).

Paracelsus stated that everything you consume is either a poison or a remedy, it is the dosage of the substance that determines whether it will cure or harm you (Hargrave, 2019).

From Hahnemann and Paracelsus one can see that the potency of a substance will cause a specific stimulation depending on its quantity. This can be further explained through the Arndt-Schulz-Kötschau law. This law has three different variants, namely (Gaier, 1991):

- A small dose will produce an effect of stimulation
- A moderate dose will start off with an effect of stimulation, followed by a depressed phase that will eventually end up back at the starting point
- A large dose will produce a toxic stimulation that can be fatal

2.4 IMPONDERABILIA

2.4.1 INTRODUCTION

The word imponderabilia arrived from the word *Imponderabolis*, which means weightless. Imponderable remedies are produced from a source that does not contain any material value (Merriam-Webster, 2020 c). This means that the substance does exist but there is currently no scientific method in place to determines its true value.

Magnetis poli ambo was the first produced and proven imponderabilia remedy in 1833 by Hahnemann (Hahnemann, 1921).

In homoeopathy, there are currently 124 imponderable remedies which can be categorised into the following groups (see *Appendix G*):

- Gemstones: Ruby and Sapphire
- Solar: Sunlight yellow and Venus Stella Errans
- Electronic: Radio waves and Ultrasound
- Colour: Green and Red.
- Light: Blue and Rainbow
- Other: Fire and Radiation combination.

Imponderabilia can be further divided into 2 groups, namely: artificial and natural (Davidson, 2013). Musical imponderabilia falls under the artificial category, which also includes *X-ray* and *Electricitas*.

Most imponderabilia remedies are made by exposing milk sugar (lactose) or purified water to a specific source. Chromotherapy is the process by which a coloured glass full of water is placed in the sunlight for a set amount of time and the water is consumed as treatment. Waulters produced the colour remedies in homoeopathy and related each colour to the various chakras. Chromotherapy can be referred to as the 'unsuccussed' imponderabilia colour remedies in homoeopathy(1999).

2.4.2 PROVINGS ON IMPONDERABILIA REMEDIES

The Australian homoeopathy, Peter Tumminello is renowned for his writings on the so-called “jewel” remedies. These remedies are modern day imponderabilia remedies that are prepared through the immersion of gemstones in water and placed in direct sunlight for 6 hours followed by 6 hours under moonlight (Tumminello, 2005). Some have questioned whether such remedies are indeed single imponderabilia remedies or a complex imponderabilia remedy due to the exposure to sunlight and moonlight during the process of manufacturing i.e. Tumminello refers to a diamond imponderabilia as “Adamas” (to be differentiated from Sherr’s proving of the actual substance of a diamond) but it may be argued to be a complex of *Sol (*sunlight), *Luna* (moonlight*)* and *Adamas* (diamond).

2.4.2.1 SOL (SUNLIGHT)

Through history the sun has been seen as a form of divine being. The ancient Egyptians said that because the sun rises in the east, or left-hand side, so the sun is the left eye of Horus, the god of Harmony, and the moon must have been the right eye (Quirke, 2014). In Chinese culture, the sun represents the Yang and the moon the Yin. The Yin, or sun, is considered to be female because it contains negativity, darkness and is filled with female characteristics such as softness, gentleness and tenderness. Yang, or the moon, on the other hand, is considered to be male because it is filled with positivity, brightness and expresses male characteristics such as hardness, strength and brutality (Wang, 2012).

The remedy sunlight or better known as ‘Sol’ is prepared from concentrating sunlight on lactose powder (Murphy, 2000). It was fist prepared by a final year homoeopathic student, Robbins in London in 1993. Robbins did a proving of Sol on 25 individuals, which consisted of 8 men and 17 women. It was conducted at different times, dosages and potencies. A few of the results are mentioned (Robbins, 2003):

- Mind: They felt like they had a big empty void inside. They are not one with their soul.
- Emotions: They either had rage or better control over general emotions.
- Dreams: Dreams of the past. Dream of happiness, warmth and positive memories.
- Foods: They developed a desire for alcoholic drinks, cheese and coffee.
- Head: They experienced headaches during the daytime.
- Stomach: They experienced an acidic burning pain during the night.
- Sleep: They experienced insomnia, but their mind was not active.

2.4.2.2 PROVING OF LUNA (MOONLIGHT)

Luna is the remedy made of the moon’s rays, which was first conducted in South America. The remedy was produced by aligning a telescope to the moon and focusing its rays onto a glass plate filled with lactose powder. The lactose is then stirred with a glass rod and takes 3 to 4 hours to complete the remedy. The key findings were as follows (Clarke, 2000):

- Mind: Participants had experienced the desire to be alone, difficulty in expressing thoughts and the day before a full moon, the symptoms worsened.

- Female: The menses were far worse than ever before with a sharp stinging pain and dark red blood.
- Dreams: Dark scary dreams of sadness and death.

2.4.2.3 PROVING OF X-RAYS

X-ray were discovered in 1895 and the homoeopathic remedy was made on the 27 March 1897 (Klein, 2012). The x-ray remedy was created when a vial filled with alcohol was exposed to 30 minutes of x-ray. It was then homoeopathically prepared to a 6 CH. In 1897, 10 people participated in the proving of this new x-ray imponderabilia remedy, where the findings were (Allen, 2005):

- Mind: Is all over the place, with difficulty finding the right words or letters.
- Nose: Feels as if one side of the nose stops working, nasal discharge is normally thin but congestion is bloody.
- Right side is normally more affected.
- Stomach: Is upset in the morning at about 4 am.

These symptoms occured 4 days after the remedy was given.

2.4.2.4 PROVING OF PINK LIGHT

The pink light imponderabilia remedy was created by Wauters who placed water under a pink light for a period of time. The water was further prepared homoeopathically to 30 CH powder remedies. In 2008, Somaru conducted the proving on the pink light remedy, where 30 volunteers took the remedy and recorded their symptoms, which were analysed and added to the new remedy picture in the materia medica. Here, 30

volunteers took part in this double-blinded placebo study. The provers produced the following symptoms: anger, antisocial behaviour, anxiety, depression, headaches, irritability, rage, sleep disturbances, increase sexual desires, tranquillity and vertigo. The outstanding symptom was the provers experience and increase in sex drive, desires and dreams (2008).

2.4.3 COLOUR REMEDIES

Ambika Wauters has dedicated 10 years of her life to studying and proving colour remedies. Her first batch of colour remedies was made in 1989, where she placed distilled water in beakers and covered them with artificially coloured filters and exposed them to 5 hours of light. The remedies were stored and potentized in to batches. These batches were produced according to two seasons: winter and summer. During winter, the warmer colours of red, orange and yellow were potentized. During summer, the cooler colours of green, indigo, violet and turquoise were potentized (Wauters, 1999).

Wauters then conducted provings on these colour remedies and allocated the spiritual chakras of the body to their corresponding colour remedy. Chakras filter the energy entering the body, keep us alive and allow energy to flow through the body. Chakras are a physiological practice of Buddhism healing (Gaur, 2018). The chakras of the prover were determined by taking the full case of the prover, which included the emotional state the provers were found in. The provers kept a dairy, which they filled in 3 times a week and spoke about their mental, emotional, physical and spiritual well-being. Wauters concluded that the colour remedies increased the recovery of the

chakras by means of providing power or energy towards the area in need (Wauters, 1999)

2.4.4 CHROMOTHERAPY

According to the Stedman's medical dictionary, chromotheraphy refers to any disease treatment by means of coloured light (Stedman, 2006 a). This means that one must take medication made of light.

Chromotherapy is based on the use of sunlight to make the medicine or a remedy and there is a a close relationship with phototherapy. Phototherapy (light therapy) was in practiced in ancient Egypt, Greece, China and India (Yousuf & Raza, 2005). The Egyptian god Thoth was the son of Horus and it believed he was the creator of chromotherapy. He used it by mixing 2 colours from crystals and to restore balance to the disease within the Chakras. In modern day medical doctors use the blue green spectrum of light to treat babies with jaundice.

Jaundice is when there is too much bilirubin in the blood and gives the child a yellow skin appearance with jaundice the baby will be expose to a green blue light or he will be placed in direct sunlight for a period of time. The amount of time will be determined by the paediatric doctor. The skin will absorb the light and help the babies body to use bilirubin as a building blocks in red blood cell production (Ennever, et al., 1983).

The way chromotherapy work is each colour in the visible light spectrum have a specific light frequency. The light has a specific frequency ranging from 380 nanometre to 700 nanometres. This range give us the following lights: Indigo, Blue, Green, Yellow, Orange, Red and Violet. These frequency cause specific vibrations and when water is expose to it, water will adapt these vibrations (memory of water) and cure specific diseases (Yousuf, et al., 2019).

According to Doctor Edwin Babbitt one must take a specific colour glass, fill it full of water and place it into direct sunlight ninety minutes after sunrise and sixty minutes before sunset. The patient must receive half a glass of chromotherapy water in twenty minutes. In his book “The principle of light and colour”, he further explained that the seven colours can be used for the following treatment (Badditt, 1878):

2.4.5 SOLAR SYSTEM INFLUENCES

According to the Pythagoreans, Pythagoras could hear the sun, moon and other planets produce their own sound as the move through space after experimenting with different objects to make different sounds at different intervals. He discovered that the force you apply to the instrument, will determine its sound (Caleon & Ramanathan, 2008) (Ferguson, 2008).

In the early 17th century, a German mathematician, Johannes Kepler, discovered various equations by which he could determine the sounds that the various planets in

this solar system produce. The planets produced different sounds because of their orbit arrangement (Wilson, 2018).

In recent years, recordings were made when probes either entered the atmosphere of various orbital bodies or when they passed orbital bodies, which proved that each planet produces a particular frequency or sound of its own (NASA Content Administrator, 2017). In 1987, Nasa released an article that confirms that the sun and moon do play roles in the ocean tides. They have come to the conclusion that the waves on our planet cause a loss in earths rotational speed by up to 2.25 milliseconds over the course of a century (D.C.Christodoulidis, 1987).

The moon and planets have an effect on the ocean, which means that they possibly have an effect on all living things and the sounds they produce may also have an effect on everyday living.

2.5 AGROHOMEOPATHY

According to Harbord Homeopathic Clinic, they currently have 26 independent studies on plants since the early 1980's. (Mikesart22, 2020). Two of the studies are mentioned: In 2004, a study was conducted that included 450 wheat plants, where 150 received potentized water in a 45 X potency, 150 received the remedy Arsenicum album in a 45 X potency and 150 received normal water. The results showed that the Arsenicum album decreased the growth of the wheat plants (Baumgartner, et al., 2005).

Between 2003 and 2004 an independent study was conducted on duckweed plants, where 4 different substances were potentized between 14 X and 30 X. The substances were Gibberellic acid, Kinetin, Argentum nitricum and Lemna minor. The plants were placed in a solution that contained 46.2 ml remedy for seven days. After the 7 days the unsuccused and succused remedies was compared to each other. The results concluded that the substances potentized at 15 X, 17 X, 18 X, 23 X and 24 X reduced the growth rate of the duckweed plants (Simon, et al., 2009).

In 2015, Giovanni Dinelli conducted research where he exposed wheat seedlings to either an Arsenicum album remedy, or water. After 7 days, a Ribonucleic acid (RNA) quality check was performed on 12 gene expressions of the plants. In particular, the results indicated that the highly diluted Arsenicum album seedlings had a reduction in gene expression in terms of mass (weight) compared to the control group. This double blinded study indicated that homoeopathy does have an effect in the growth of plants on a nano-molecular level (Different approaches in homeopathic basic research: plant-based bioassays and evaporation-induced crystallization, 2015).

From the above three studies, it is indicated that homoeopathy does have an effect on plants regarding certain physical findings as well as on a genetic level. This can be of great use in the agricultural field but more importantly, in the Agrohomeopathy field.

2.6 REPERTORY

The word repertory refers to a place of storage which is easily accessible (Dimitriadis, 2017). In Homoeopathy, it is a collection of all the symptoms experienced by patients with their corresponding remedy and is used by a physician to reference which remedy is the most similar fitting to the patient's total picture. A repertory places diseases in an alphabetical order and uses a grading system for the remedies to specify which remedy is the most indicated for that particular symptom (Dimitriadis, 2017). Rubrics are defined as a division in the repertory that assists you to find a symptom and is correlating remedies (Stedman, 2006 e). Grading is defined as a form of rating which is used for specific disease, or in this case remedy, according to a set scale (Stedman, 2006 b).

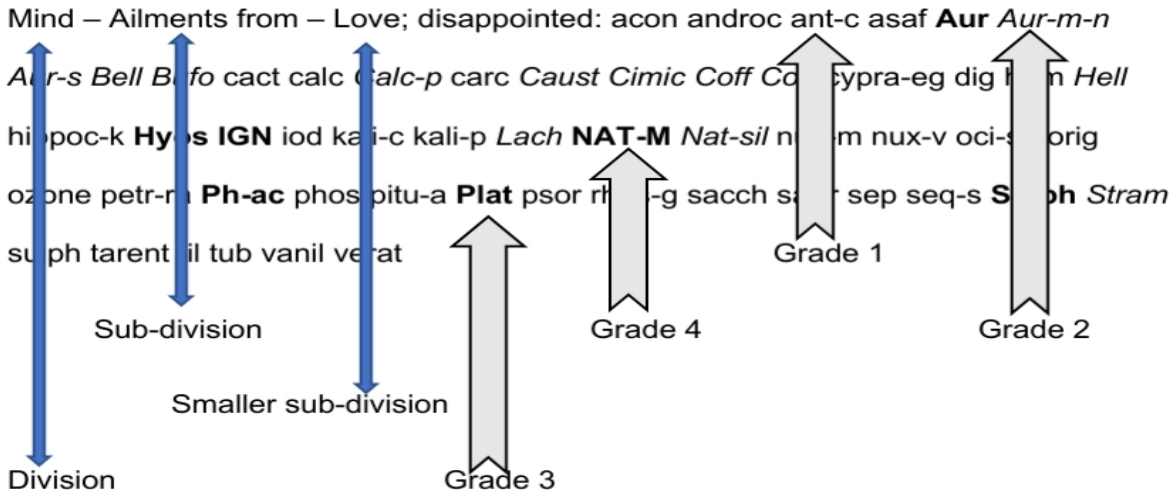

Figure 2.6 Mind rubrics

Figure 2.6 above represents the divisions and grading system used within the repertory, these are categorised as follows (Boericke, 1927) (Dimitriadis, 2017):

Division – The divisions in a repertory include the mind, throat, neck, ears, extremities, male, female, abdomen, sleep, generals, etc.

Sub-division – Each division has a sub-division. The sub-divisions are in relation to the disease or symptoms of disease in an alphabetical order.

Smaller sub-division – Each sub-division has a smaller section which gives a description of the sub-division.

Grade 1 – The abbreviation of the remedy is written in small letter which means that only a few provers have shown to have these symptoms. Therefore, the remedy is not strongly indicated for that particular symptom.

Grade 2 – The first letter of the abbreviation of the remedy is written in capitals. Many of the provers have shown to have these symptoms.

Grade 3 – The entire abbreviation of the remedy is written in bold but only the first letter is in capitals. This symptom has been proven multiple times in clinical practice.

Grade 4 - The entire abbreviation of the remedy is written in bold and in capitals. This symptom has been proven multiple times in clinical practice.

CHAPTER THREE

3.1 INTRODUCTION

The study was conducted within the quantitative research paradigm, which aims to determine the biological effect of four new musical imponderabilia remedies on a plant model. The experiment was performed on five groupings of the *Calendula officinalis* plant, with measurements of stem height, stem diameter and the number of leaves as the objective indicators on growth. *Calendula officinalis* plants are easy to grow, have an annual lifespan and bloom within 6 weeks. The results were statistically analysed, and comparisons were made between placebo and experimental groups.

3.2 RESEARCH DESIGN

3.2.1 PREPARATION OF THE IMPONDERABILIA REMEDY

All four imponderabilia remedies underwent the same procedure as described in *Appendix A*. The music selected for the various genres can be observed in *Appendix B*. The remedy preparation took 4 days to complete which commenced on the 24th August 2020 and ended on the 28th August 2020.

The remedy production was under laminar flow in the Laminar Flow room at the Durban University if Technology Homoeopathic department (see *Appendix D*).

The preparation of the remedies used the Hahnemannian centesimal scale (1:99):

- During night 1: 10 ml of spring water was placed in a container for 19 hours and 30 minutes. The water was placed at a distance of 1 metre from a speaker that transmitted a playlist of classical music.
- During day 1 (the day after night 1) the spring water now contained the classical music frequency and is referred to as the mother tincture. The researcher then converted this mother tincture to a 30 CH potency according to the centesimal modification of Method 8a, which is the specific method used to create imponderabilia remedies (World Health Organization, 2009).
- Night 2: 10 ml of spring water was placed in a container for 19 hours and 30 minutes. The water was placed at a distance of 1 metre from a speaker that transmitted a playlist of rock music.
- Day 2: The water is now referred to as the rock music mother tincture. The researcher converted it to a 30 CH potency according to the centesimal modification of Method 8a.
- Night 3: 10 ml of spring water was placed in a container for 19 hours and 30 minutes. The water was placed at a distance of 1 metre from a speaker that transmitted a playlist of pop music.
- Day 3: The water is now referred to as the pop music mother tincture. The researcher converted it to a 30 CH potency according to the centesimal modification of Method 8a.
- Night 4: 10 ml of spring water was placed in a container for 19 hours and 30 minutes. The water was placed at a distance of 1 metre from a speaker that transmitted a playlist of jazz music.

- Day 4: The water is now referred to as the jazz music mother tincture. The researcher converted it to a 30 CH potency according to the centesimal modification of Method 8a.

3.2.2 PREPARATION OF THE PLANT MATERIAL

Fifty *Calendula officinalis* seedlings of similar stem height, stem diameter, number of leaves with no broken branches were bought from Illovo nursery, in Illovo Kwazulu-Natal. All the plants were planted in the same soil mixture that composed of 28.5% riversand, 42.9% compost and 28.5% bone meal and lime. Each *Calendula officinalis* plant received a random number, the number indicated which groups the plants were placed in and which imponderabilia remedy or placebo it received (see *Appendix E*). All the *Calendula officinalis* plants were planted on the 24th of August and received the placebo for the 1st week.

The plant cultivation took place at the Durban University of Technology Horticulture department tunnels (see *Appendix D*).

3.2.3 REMEDY ADMINISTRATION

Every *Calendula officinalis* plant received 50 ml of a specific imponderabilia remedy or placebo on a Monday, Wednesday and Friday. The remedy administration took place after the 1st week for the following 6 weeks. The time frame was from the 31st August to the 12th of September 2020.

3.3 DATA

3.3.1 DATA COLLECTION

Data in terms of stem height, stem diameter and number of leaves was collected on every Monday from the 24th August until the 12th September 2020.

The stem height was measured between the area where the stem exited the soil to the tallest flower bud or shoot tip. The stem diameter was measured at the point where the stem exited the soil. The number of leaves included all the leaves of the plant no matter the location or size.

3.3.2 INSTRUMENTS USED TO COLLECT AND RECORD DATA

The researcher required the following instruments to perform the measurements:

- Vernier to measure stem diameter
- Measuring tape to measure stem height
- Leaves counted by the researcher

The data was recorded in an Excel spreadsheet (See *Appendix F*)

3.3.3 ANALYSIS AND REPORTING OF DATA

The Data was analysed with The R Project for Statistical Computing software version 3.6.3 to determine if the p values were significant in terms of the 95% confidence interval, by means of Analysis of variance (ANOVA). The growth rate was determined

by the following formula: $Growth\ rate = \frac{Current\ value\ average - previous\ value\ average}{Previous\ value\ average} \times 100$ (Baker, 2002).

The data will be represented in the form of 1) A mean growth line graph, 2) Growth rate column graphs and 3) ANOVA p-value tables.

CHAPTER FOUR

4.1 RESULTS

4.1.1 INTRODUCTION

During this experiment, the *Calendula officinalis* plants were planted at a very young age. Due to the growth of the plants, it was expected that the mean results will follow a S-shape curve or sigmoid curve in terms of stem height, stem diameter and number of leaves.

This sigmoid curvature should normally follow a growth pattern, which indicates a slow initial growth phase (Day 0 to 7). This is due to the “stress” the plant undergoes as it is exposed to the various treatments. This initial phase is usually followed by a rapid growth increase phase (day 7 to 21). At this phase, the plants are now “used’ to the treatment and should go into rapid growth. Once the plants reach the maximum support capacity of the treatment, the growth should stabilise and the plants can enter a plateau phase (day 21 to 49).

The various imponderabilia remedies are the only factors that the researcher exposed the *Calendula officinalis* plants to. This means the imponderabilia remedies were the only factor that could cause the sigmoid curvature to change or not.

4.1.2 CALENDULA OFFICINALIS PLANTS RESPONSE TO IMPONDERABILIA REMEDIES OVER THE COURSE OF 7 WEEKS IN TERMS OF STEM HEIGHT.

In terms of mean stem height (Fig. 4.1. A), a positive correlation to the various imponderabilia remedies were indicated. It is observed that the growth patterns follow a similar sigmoid curvature among the placebo and imponderabilia remedies. Pop imponderabilia had the lowest mean value, while Rock imponderabilia had the highest mean value. Fig. 4.2.A indicated that the various imponderabilia remedies growth rates were all positive throughout the study. Rock, Classic and Placebo showed no significant differences amongst each other, while Jazz and Pop showed significant values.

4.1.3 CALENDULA OFFICINALIS PLANTS RESPONSE TO IMPONDERABILIA REMEDIES OVER THE COURSE OF 7 WEEKS IN TERMS OF STEM DIAMETER.

In terms of mean stem diameter (Fig. 4.1. B), there were various curved graphs that followed a similar sigmoid pattern. In the initial phase (day 0 to 7), the placebo group was the only group to follow the 'normal pattern' of a slowed initial growth phase, which is due to stress, whereas, the imponderabilia remedy groups had no initial limitation and went straight into the rapid growth phase. Rock imponderabilia had the lowest mean value, in terms of stem diameter, while Classic imponderabilia had the highest mean value. Fig. 4.2. B indicates the various imponderabilia remedy growth rates, which were all positive throughout the study. Two groups started to appear, namely:

Group 1, which included the Jazz imponderabilia remedy and placebo that did not show any significant values and Group 2, which included Pop and Classic imponderabilia remedies that showed significant values. Rock imponderabilia did not show any significant values amongst the two groups.

4.1.4 CALENDULA OFFICINALIS PLANTS RESPONSE TO IMPONDERABILIA REMEDIES OVER THE COURSE OF 7 WEEKS IN TERMS OF THE NUMBER OF LEAVES.

In terms of mean leaf number (Fig. 4.1. C), we find a modified sigmoid graph that follow the same pattern amongst the various imponderabilia remedies and placebo group. Between day 0 and 7, there was a slow increase in leaf number. Day 7 to 21 showed an increase in leaf number and between day 21 to 35 the plants entered into a plateau phase. These readings are normal in comparison to a sigmoid graph pattern. After day 35, the sigmoid graph became modified due to a slight increase in the number of leaves. Classic Imponderabilia had the highest leaf number, with Jazz imponderabilia having the lowest number of leaves. Fig. 4.2. C, showed positive growth rates among the various imponderabilia remedies and placebo group. The placebo had the lowest leaf growth percentage while all the imponderabilia remedies outperformed the placebo group.

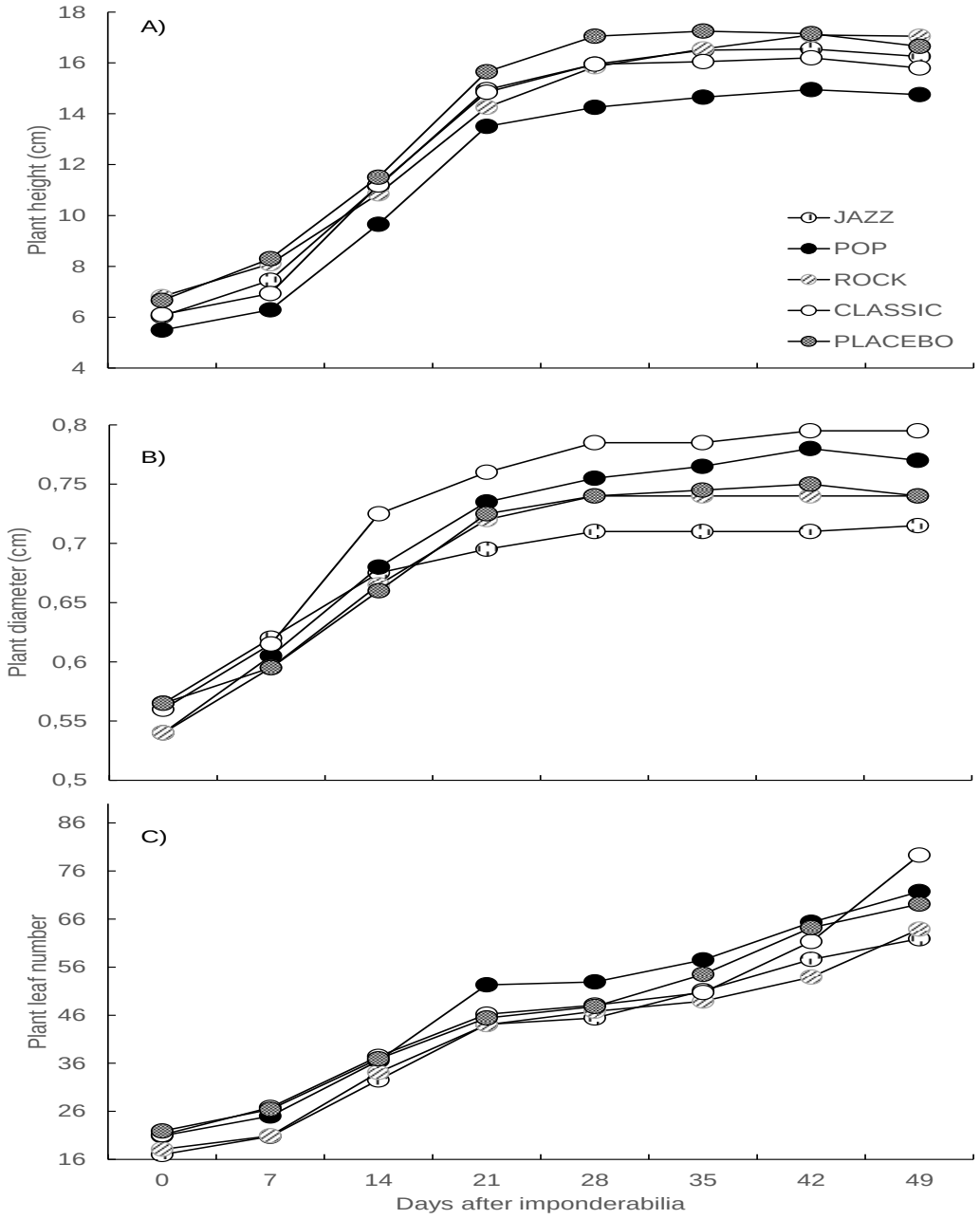

Fig 4.1. *Calendula officinalis* weekly mean growth in terms of (A) stem height, (B) stem diameter and (C) leaf number over a period of 7 weeks.

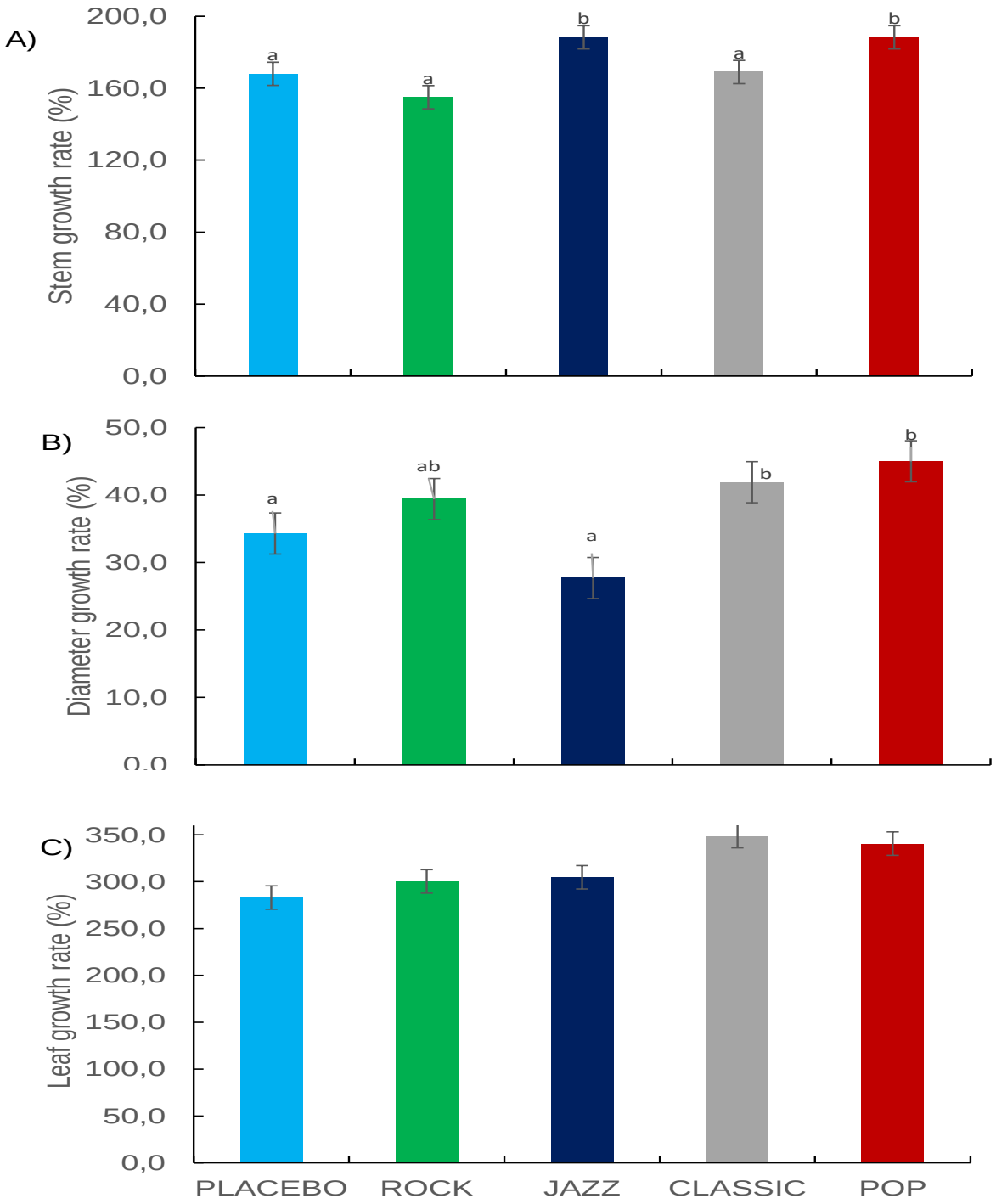

Fig 4.2. *Calendula officinalis* overall growth rate in terms of (A) stem height, (B) stem diameter and (C) leaf number.

4.2 RESULTS DISCUSSION

4.2.1 INTRODUCTION

The raw data can be observed in *appendix F*. All the graphs in chapter 4 showed a positive mean growth rate in the various areas of measurements due to the fact that the plants were planted as seedlings. From the seedlings, the plants matured and produced thicker stem diameters, taller stem heights and an increased number of leaves.

Analysis of variance (ANOVA) was done to determine whether there were differences between the different imponderabilia remedies and the placebo group. From the statistical analysis, the significant p values were less than 0.05, therefore, are significant.

4.2.2 STEM HEIGHT DISCUSSION

In terms of average mean stem height (Fig 4.1.A), Jazz imponderabilia increased from 6.04 cm to 16.25 cm. Pop imponderabilia increased from 5.49 cm to 14.75 cm. Rock imponderabilia increased from 6.81 cm to 17.05 cm. Classic imponderabilia from 6.1 cm to 15.8 cm. Placebo increased from 6.66 cm to 16.65 cm. This gives an indication that the placebo group outperformed all the imponderabilia remedies, except for Rock.

Comparison between placebo and remedy	
Classic-placebo	0.999
Jazz-placebo	0.759
Pop-placebo	0.910
Rock-placebo	0.059
Comparison between imponderabilia remedies	
Rock-Classic	0.108
Jazz-Classic	0.611
Rock-Pop	***0.004***
Pop-Jazz	0.997
Rock-Jazz	***0.001***
Pop-Classic	0.806

Table 2: ANOVA p-value stem height table in terms of remedy comparison

The statistical analysis (Table 2), indicated that there was no significant increase in the stem height between each remedy and the placebo group (Jazz and placebo, Pop and placebo, Rock and placebo, Classic and placebo). The remedies had no biological effect on the stem height of the plants, as all the p values were greater than 0.05. Once the imponderabilia remedies were compared to each other, there were significant values, which indicated that the Rock imponderabilia had an increase in the stem height in comparison to Jazz and Pop imponderabilia remedies.

4.2.3 STEM DIAMETER DISCUSSION

In terms of average mean stem diameter (Fig 4.1. B), Jazz imponderabilia increased from 0.565 cm to 0.715 cm. Pop imponderabilia increased from 0.54 cm to 0.77 cm. Rock imponderabilia increased from 0.54 cm to 0.74 cm. Classic imponderabilia from 0.56 cm to 0.795 cm. Placebo increased from 0.565 cm to 0.74 cm. From these values, it is indicated that Pop and Classic had a higher mean value than placebo, while Rock imponderabilia had the same mean value as placebo.

Comparison between placebo and remedy	
Classic-placebo	***0.036***
Jazz-placebo	0.879
Pop-placebo	***0.009***
Rock-placebo	0.436
Comparison between imponderabilia remedies	
Rock-Classic	0.776
Jazz-Classic	***0.001***
Rock-Pop	0.503
Pop-Jazz	***0.000***
Rock-Jazz	0.065
Pop-Classic	0.992

Table 3 ANOVA p-value stem diameter table

The statistical analysis (Table 3) indicated that there was a significant increase in the stem diameter between Pop and Classical and the placebo group (Pop and placebo; Classical and placebo). This is an indication that Pop and Classical Imponderabilia did have a biological effect on the growth of stem diameter thickening. Once the imponderabilia remedies were compared with each other, there were significant values. The significant values between Pop and Jazz imponderabilia indicated that Pop had a biological effect in increasing stem diameter in comparison to Jazz. The significant values between Jazz and Classical imponderabilia indicated that Jazz had a negative biological effect on the *Calendula officinalis* plants in comparison to Classical imponderabilia. The Jazz remedy stunned the growth because it was observed that the mean value was less than that of the Classical imponderabilia.

4.2.2 LEAF DISCUSSION

In terms of average mean leaf number (Fig 4.1. C), Jazz imponderabilia increased from 17 to 61.9. Pop imponderabilia increased from 20.9 to 71.7. Rock imponderabilia increased from 18.1 to 63.9. Classic imponderabilia from 21.1 to 79.3. Placebo increased from 21.9 to 69.1.

Comparison between placebo and remedy	
Classic-placebo	0.325
Jazz-placebo	0.701
Pop-placebo	0.782
Rock-placebo	0.759
Comparison between imponderabilia remedies	
Rock-Classic	0.397
Jazz-Classic	0.439
Rock-Pop	0.481
Pop-Jazz	0.528
Rock-Jazz	0.923
Pop-Classic	0.904
Comparison between weeks	
Week 1-7	***0.000***
Week 2-7	***0.000***
Week 3-7	***0.000***
Week 4-7	***0.000***
Week 5-7	***0.000***
Week 6-7	***0.034***
Week 4-7	***0.000***

Table 4 ANOVA p-value leaf table

The statistical analysis (Table 4) indicated that there was no significant increase in the number of leaves between the various imponderabilia remedies and the placebo group. The same phenomena occurred when the various imponderabilia remedies were compared to each other. This means that the various imponderabilia remedies did not have any biological effect on the number of leaves between themselves and between the placebo group. The statistical analysis indicated that only the weeks were significant in value.

CHAPTER FIVE

5.1 VERDICT OF EXPERIMENT

5.1.1 INTRODUCTION

This experiments quality was determined by the researcher due to the fact that plants are stationary and depended on the researcher. Calendula officinalis plants were used to gain a consistency in the study. In terms of stem height, none of the imponderabilia remedies showed significant values in relationship to the placebo group, although the Jazz imponderabilia had the highest growth rate. In terms of stem diameter, only Pop and Classical imponderabilia showed a significant effect in comparison to the placebo group. For the number of leaves, significant values were found throughout the various weeks, however, there was no significant biological effect due to the various imponderabilia remedies.

This is the very first experiment on musical imponderabilia remedies. These remedies must be further investigated to provide more understanding and significant data. This study can be used to expand the homoeopathic materia medica or plant repertory.

5.1.2 AGROHOMEOPATHY REPERTORY

A single study's results are not enough to create new rubrics for a homoeopathic or agrohomeopathic repertory. This study attempted to create new rubrics as a guideline for future studies that were not based on the significant values but rather on the growth

rate. This study needs to be repeated multiple times to confirm the results and add significant rubrics with grading for the agrohomeopathic repertory.

This experiment grading is based on the entire growth rate among the various parameters and was done as follows:

- “Grade 0”: The placebo as a baseline.
- Grade 1: The imponderabilia remedy that had more points than the placebo. The imponderabilia will be written in lower case letters.
- Grade 2: The imponderabilia remedy that had more points than the grade 1 imponderabilia remedy. The imponderabilia will be written in italics with lower case letters but the 1st letter will be a capital letter.
- Grade 3: The imponderabilia remedy that had more points than the grade 2 imponderabilia remedy. The imponderabilia remedy will be written in bold with the 1st letter as a capital letter.
- Grade 4: The imponderabilia that outperformed the grade 3 imponderabilia remedy. This imponderabilia remedy will be written in bold and completely in capital letters.

If the imponderabilia remedy did not outperform the placebo. The imponderabilia remedy would be placed under the division and sub-division of “growth – decreased…”. This means that the placebo will receive a “grade 0”. Any imponderabilia above it will be graded from 1 to 4. Any imponderabilia below the placebo will be graded from 1 to 4 based on the different division.

From this description the rubrics are as follows:

- Leaf – Number – Increased (growth rate) P 4 **New**
    - **CLASSICAL**, *Jazz*, **Pop**, rock
- Stem & grain – Stem diameter – Decreased P 10 **New**
    - jazz
- Stem & grain – Stem diameter – Increased P 10 **New**
    - *Classic*, **Pop**, rock
- Stem & grain – Stem height – Decreased P 10 **New**
    - rock
- Stem & grain – Stem height – Increased P 10 **New**
    - *Classical*, **Jazz**, **Pop**

5.1.3 OBSTACLES DURING EXPERIMENT

During this experiment, the researcher experienced a few unforeseen obstacles.

The first obstacle was the group and remedy orientation. Each group contained 10 plants with 2 plants being used for each remedy, including the placebo. This made the remedy administration very difficult. The researcher had to double and triple check before administrating the remedies to the allocated plants.

The researcher realised the quantity of remedies and the number of *Calendula officinalis* plants did affect the quality of the study. These added more obstacles, for instance:

- 50 *Calendula officinalis* plants were used. This created much difficulty in the leaf counting because by the end of the study, most of the plants had more than 60 leaves each. To count the vast number of leaves became difficult to perform and the researcher had to re-count to ensure reliability of the data.
- 5 “treatment” groups (4 imponderabilia remedies and 1 placebo) were used during the study. This caused the study to become less detailed due to the amount of comparisons and remedies included. A single imponderabilia remedy experiment would provide better quality and more detail into the study.

5.1.4 RECOMMENDATIONS REGARDING FUTURE STUDIES ON MUSICAL IMPONDERABILIA

The study took place on *Calendula officinalis* plants, it was an *in-vivo* study which refers to a life study. For future studies, the researcher recommends the following:

1. A placebo-controlled *in-vivo* study of the effect of four musical imponderabilia on the growth of *Calendula officinalis* plants with the placebo group containing 1% alcohol.
2. A placebo-controlled *in-vivo* study of the effect of a single musical imponderabilia on the growth of *Calendula officinalis* plants with the placebo group containing 1% alcohol.
3. A double-blind placebo-controlled *in-vivo* study of the effect of a single musical imponderabilia 30 CH remedy on humans.

These future studies should be conducted in the same manner describe in Chapter 2 section 2.3.3 Homoeopathic Pathogenetic trial which includes: a placebo group between 10 and 30 percent with 3 different potencies and a sample size between 12 and 50 plants or participants (De Schepper, 2001).

5.2 THE HYPOTHESIS

This study confirmed the hypothesis that imponderabilia remedies do have an effect on *Calendula officinalis* plants. The four musical imponderabilia remedies did influence the growth rate of the *Calendula officinalis* plants in terms of stem diameter only.

The researcher realised when the remedy comparison was made, an unstated hypothesis occurred within the stated hypothesis. The unstated hypothesis is: The four music imponderabilia remedies will affect the growth of *Calendula officinalis* plants in comparison with each other.

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APPENDICES

APPENDIX A – PROCEDURE TO MAKE A SINGLE MUSICAL IMPONDERABILIA REMEDY

Aim: To produce musical imponderabilia remedies from a mother solution to a 30 CH.

KEY FORMULA
● 3 drops of 96% ROH equals 0.035 ml ● ml of drops = 1/number of drops in 1 ml x drops used ● ml of drops = 1/86 x drops used

Table 5 Formula Table

Apparatus:

30 x Pasteur pipet

29 x 14 ml Bijou Glass Bottles (BGB)

1 x 150 ml Amber Glass Bottle (AGB)

1 x 1 ml, 1 x 10 ml, 1 x 20 ml Pipet (PIP)

1 x 50 ml, 1.5 L Beaker

1 x 500 ml Cylinder

Spring water (Aq)

96% Ethanol (ROH)

1 x 2 L Container

1 x Pipette filler

1 x Paper

1 x Lighter

1 x Ruler (to flame)

Labels

Method:

(CLEAN ALL EQUIPMENT, FOLLOW STEP 1 TO 5 FOR ALL 4 IMPONDERABILIA REMEDIES)

1. To Prepare mother tincture
    - Add 10 ml of Aq in 50 ml beaker all By Means Of (BMO) 10 ml PIP.
    - Cover the beaker with a piece of paper.
    - Place beaker in dark room, one metre away from the speaker and play music (specific genre) to the Aq for 19 hours and 30 minutes.
    - After the 19 hours and 30 minutes pour the Aq in to 14 ml BGB
    - Label as [musical genre] mother tincture

2. To Prepare 1 CH from mother tincture
    - Add BMO 10 ml PIP 9.9 ml (99/100 x 10 ml) of 96% ROH in a 14 ml BGB.
    - Add BMO Pasteur pip 9 drop of mother tincture (1/100 x 86 drops in ml x 10 ml) in 14 ml BGB.
    - Apply 10 manual succussions.
    - Label as [musical genre] 1CH

3. To prepare the next potency repeat the previous unit the [specific genre] 28 CH is reached

4. To prepare 29 CH from 28 CH
    - Add BMO 20 ml PIP 99 ml of 96% ROH in a 150 ml AGB.
    - Add BMO 5ml PIP 1 ml of 28 CH in 150 ml AGB.
    - 10 succussions
    - Intermediate [specific genre] label.

5. To prepare 30 CH from 29 CH
    - Add 1485 ml of Aq BMO 1.5L Cylinder in 2 L Container .
    - Add 15 ml BMO 20 ml PIP of 29 CH in 2 L Container.
    - 10 succussions
    - Final [specific genre] label

APPENDIX B – MUSIC THAT MADE UP THE GENRES.

Below are the lists of all the music. The music were downloaded from Mp3Juices.cc (www.mp3juices.cc). Unfortunately, the website does not provide individual reference to each download. It can only be access if the name of music is typed into the website search engine.

JAZZ MUSIC

- 1 Hour Jazz Music Coffee Bar Instrumental Lounge Music 446
- 1-Hour Jazz Piano Trios
- 30 Minutes of Relaxing Jazz Music and Candles
- 30 Minutes of Smooth Jazz
- American Jazz Songs - Best of Jazz Hits
- Autumn Jazz and Autumn Jazz Playlist 1 Hour of Autumn Jazz Music and Autumn Jazz Songs
- Best Smooth Jazz Vocalists and Contemporary Jazz Artists
- Jazz Covers Of Popular Songs 2020Jazz Songs 2020
- Jazz Music Best Songs 2018Best of Modern Jazz #1
- Jazz Noir 1 Hour Jazz Noir Saxophone Music Jazz Noir Music Playlist
- Jazztronica JazzhopA one hour compilation
- New York Jazz Lounge - Bar Jazz Classics
- One Hour of Trio Jazz Music
- Piano Jazz (Instrumental) - A one hour long compilation

- Smooth Jazz Chillout Lounge Smooth Jazz Saxophone Instrumental Music for Relaxing, Dinner, Study

POP MUSIC

- Best English Songs 2017-2018 Hits, Best Songs of all Time Acoustic Mix Song Covers 2017
- Best Hits 1 Hour Pop Music - Best POP REMIX 2020
- Best Music Mashup 2010 - Best Of Popular Songs
- Best Remixes Of Popular Songs 2015 Charts Mix 2016 New Pop Music Playlist Top 100 Dance Hits
- Greatest Hits Pop Songs Of All TimeEd Sheeran
- Pop 2019 Hits Rihanna, Maroon 5, Taylor Swift, Ed Sheeran, Adele, Shawn Mendes, Sam Smith
- Pop Charts Mix 2016 Best Remixes Of Popular Songs 2015 - New Dance Hits Top 100 - EDM Party Music
- Pop Hits 2020 - Top 40 Popular Songs 2020 - Best Pop Music Colletion 2020
- Pop Songs World 2018, The Best Songs Of Spotify 2018 Vol 1
- Pop Songs World 2018 - The Best Songs Of Spotify 2018 Vol.2
- The Best Acoustic Covers of Popular Songs 2020Top Hits Acoustic 2020

ROCK MUSIC

- #2 Gaming Music Mix Rock Mix1 Hour
- 1 Hour Deathcore Music Mix [Alternative Death Metal]
- 1 HOUR QUALITY INSTRUMENTAL THRASH METAL - LIVING CARCASS - SOUTH AFRICA - KATBOK STUDIOS
- 1-Hour Djent Mix Instrumental, Hyperactive, Mystical Progressive Metal Music
- Best Classic Rock Songs of All Time - Classic Rock Songs Greatest Hits Full Album
- IndieRockAlternative Compilation - January 2020 (1-Hour Playlist)
- 'IRON DEMIGODS' Gothic Storm 1 Hour of Epic Metal & Hybrid Orchestral Music Mix
- Musica Rock 2016(20 rock songs, 1 hour rock music)LET'S ROCK 2016
- Rock'n'Roll Legends - 1 hour greatest hits
- Stoner Doom Mix Vol.1 (re-upload)
- Ultimate Hard RockMetal Mix Playlist

CLASSIC MUSIC

- 1 hour Claude Debussy L'Isle joyeuseClaude Debussy Classical Music for Relaxation Studying
- Bedtime Baby Lullaby Classical Music Mozart Bach Beethoven Pachelbel Sleep Music 1 Hour
- by Edvard Grieg and Pyotr Ilyich Tchaikovsky - The most relaxing classical music
- Frédéric Chopin - Best of - 1 hour
- George Frideric Handel - Water Music -Orchestre Paul Kuentz
- Schubert Classical Music for Studying, Concentration, RelaxationStudy MusicPiano Instrumental
- The Best of Bach
- The Best of Beethoven - 1 HOUR of Relaxing Classical Music
- The Best Of BrahmsRomantic Classical Music
- The Best of Haydn Haydn's Greatest Works, Classical Music Playlist, Instrumental Music
- The Best of Mozart - 1 Hour of Mozart
- Vivaldi - Classical Music for Relaxation

APPENDIX C – LABELS

MOTHER TINCTURE LABEL

Remedy name:	Potency
Alcohol%:	Volume:
Batch#:	Made by:
Made date:	Expiry date:

INTERMEDIATE LABEL

Remedy name:	Potency:
Alcohol%:	volume:
Date made:	Batch #:
Made by:	Expiry date:

FINAL LABEL (WILL ONLY BE USED BY THE RESEARCHER)

Remedy Name:	Potency:

APPENDIX D – GATEKEEPERS PERMISSION

HORTICULTURE DEPARTMENT

14/08/2020

Horticulture department

7 Ritson road,

Berea,

Durban

Request for Permission to Conduct Research

Dear Dr Matimati,

My name is Philippie Fourie, a fifth-year homoeopathic student at the Durban University of Technology. The research I wish to conduct for my Master's Degree in Homoeopathy involves a placebo-controlled *in-vivo* study of the effect of four musical imponderabilia on the growth of *Calendula officinalis* plants.

I am hereby seeking your consent to use the Horticulture tunnels to grow my *Calendula officinalis* plants for my research.

I have provided you with a copy of my proposal which includes copies of the data collection tools and forms to be used in the research process, as well as a copy of the approval letter which I received from the Faculty Research Committee (FRC).

If you require any further information, please do not hesitate to contact me on 079 509 1398 or on pfourietrans@gmail.com. Thank you for your time and consideration in this matter.

Yours sincerely,

Philippie Fourie

Durban University of Technology

HOMOEOPATHY DEPARTMENT

14/08/2020

Homoeopathy Department

7 Ritson Road,

Berea,

Durban

Request for Permission to Conduct Research

Dear Dr. Couchman,

My name is Philippie Fourie, a fifth-year homoeopathic student at the Durban University of Technology. The research I wish to conduct for my Master's Degree in Homoeopathy involves A placebo-controlled *in-vivo* study of the effect of four musical imponderabilia on the growth of *Calendula officinalis* plants.

I am hereby seeking your consent to use the laminar flow and a clinic room to prepare my imponderabilia remedies.

I have provided you with a copy of my proposal which includes copies of the data collection tools and consent and/ or assent forms to be used in the research process, as well as a copy of the approval letter which I received from the Faculty Research Committee (FRC).

If you require any further information, please do not hesitate to contact me 079 509 1398 or on pfourietrans@gmail.com.. Thank you for your time and consideration in this matter.

Yours sincerely,

Philippie Fourie

Durban University of Technology

APPENDIX E – HORTICULTURE TUNNELS AND LAYOUT

In *Appendix E* section 4.1 is a picture of the Horticulture tunnel that was used. There were 6 sections where various plants were grown. In the right lower area one would find the place where this studies plants were planted. Here one could see number 1 to 5. This is the indication of the various groups. In group 1 one could find plant 1 to 10. In group 2 one could find plant 11 to 20. In group 3 one could find plant 21 to 30. In group 4 one could find plant 31 to 40. In group 5 one could find plant 41 to 50.

WHICH PLANTS RECEIVES WHICH GENRE OF IMPONDERABILIA REMEDY

Plants that received:

Jazz imponderabilia remedy were 1, 6, 11, 16, 21, 26, 31, 36, 41 and 46.

Pop imponderabilia remedy were 2, 7, 12, 17, 22, 27, 32, 37, 42 and 47.

Rock imponderabilia remedy were 3, 8, 13, 18, 23, 28, 33, 38, 43 and 48.

Classic imponderabilia remedy were 4, 9, 14, 19, 24, 29, 34, 39, 44 and 49.

Placebo of spring water were 5, 10, 15, 20, 25, 30, 35, 40, 45 and 50.

FLOORPLAN OF HORTICULTURE TUNNEL

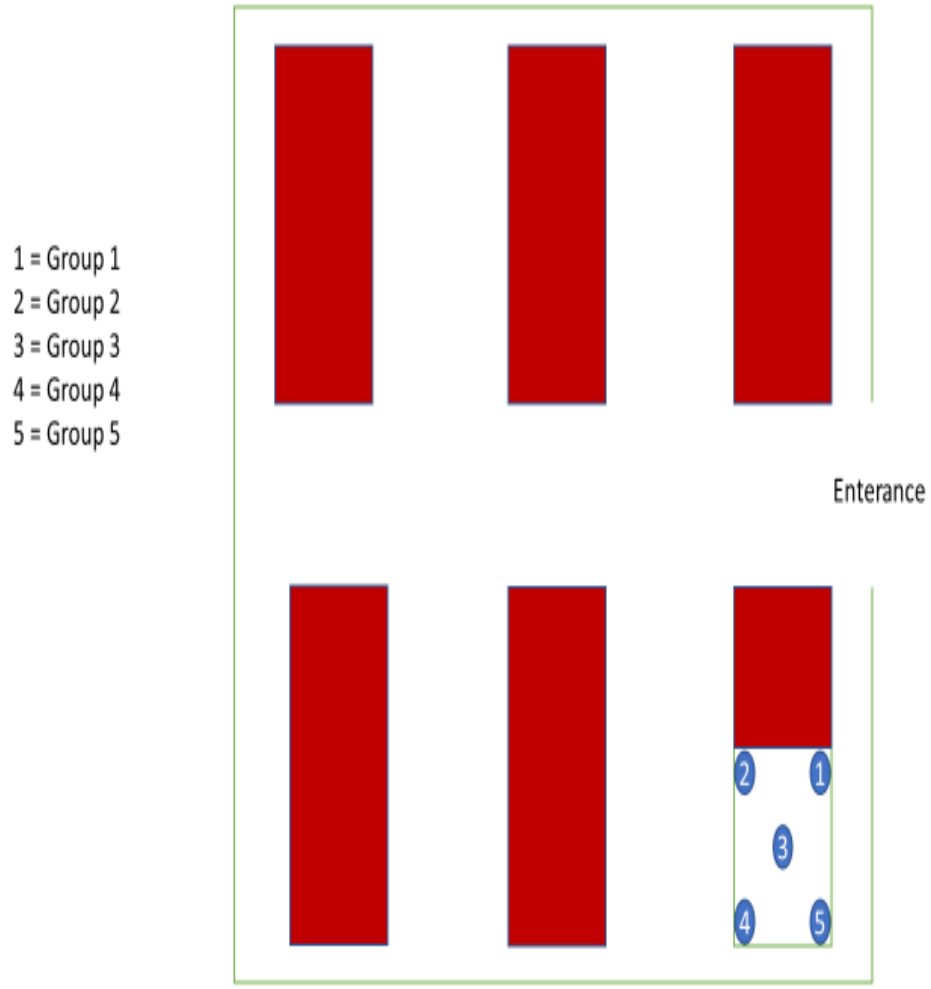

Figure 6 Tunnel layout

APPENDIX F – DATA

The data for the 7 weeks. See *Appendix E* 4.2 to confirm the plants that received which specific remedies. Weeks are added in to just make the understanding of the data easier.

Week 0 = 24 August to the 31 August measurement done on the 31st August.

Week 1 = 31 August to the 7 September measurement done on the 7th September.

Week 2 = 7 September to the 14 September measurement done on the 14th September.

Week 3 = 14 September to the 21 September measurement done on the 21st September.

Week 4 = 21 September to the 28 September measurement done on the 28th September.

Week 5 = 28 September to the 5 October measurement done on the 5th October

Week 6 = 5 October to the 12 October measurement done on the 12th October

JAZZ IMPONDERABILIA

Leaf number

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
1	12	11	27	40	48	52	58	59
6	14	12	25	36	38	45	50	58
11	13	14	32	42	41	46	52	54
16	23	26	38	52	58	67	72	71
21	12	22	36	54	52	52	56	60
26	11	12	21	35	35	31	41	41
31	14	21	39	47	45	53	62	70
36	15	18	27	40	43	60	66	64
41	40	45	47	48	46	55	59	72
46	16	27	33	47	48	50	60	70

Table 6 Jazz raw leaf number

Stem height in cm

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
1	5	6	9	17	18	19	19	19
6	7	7	9	12	13	13.5	13.5	13.5
11	6.9	7.5	12	16	17	17.5	17.5	17
16	7.5	9.5	15	15.5	18.5	20	20.5	19
21	4.5	7	10	12	12.5	13	13.5	13.5
26	2.7	3.5	6.5	9.5	10	10.5	10.5	10.5
31	4	5	7	12	14	14	14	14
36	6	8	15	17.5	18.5	18.5	19	19
41	10	13	15.5	20	20	20	20	19
46	6.8	8	12.5	18	18	19	18	18

Table 7 Jazz raw stem height table

Stem diameter in cm

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
1	0.45	0.6	0.65	0.7	0.7	0.7	0.7	0.7
6	0.6	0.65	0.7	0.8	0.8	0.8	0.8	0.8
11	0.65	0.65	0.7	0.7	0.7	0.7	0.7	0.7
16	0.55	0.6	0.65	0.7	0.7	0.7	0.7	0.7
21	0.5	0.55	0.7	0.7	0.7	0.7	0.7	0.7
26	0.55	0.65	0.6	0.6	0.6	0.6	0.6	0.65
31	0.55	0.6	0.75	0.75	0.75	0.75	0.75	0.75
36	0.6	0.6	0.6	0.6	0.65	0.65	0.65	0.65
41	0.65	0.65	0.7	0.7	0.8	0.8	0.8	0.8
46	0.55	0.65	0.7	0.7	0.7	0.7	0.7	0.7

Table 8 Jazz raw stem diameter table

POP IMPONDERABILIA

Leaf number

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
2	13	11	22	43	45	62	73	59
7	14	13	28	46	47	49	54	66
12	12	14	25	45	45	52	55	60
17	13	18	31	46	47	50	53	76
22	10	11	27	32	37	40	48	59
27	46	54	58	69	60	62	75	82
32	17	30	43	54	54	54	60	75
37	57	65	67	96	97	105	111	105
42	13	15	29	41	47	50	64	70
47	14	19	35	51	50	51	60	65

Table 9 Pop raw leaf number table

Stem height in cm

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
2	6.6	8	12	15.5	16	16	16	16
7	5.4	5.4	10	16	17	17	17.5	17.5
12	4	6	8.5	16	17.5	17.5	18	18
17	4.5	5	7.5	12	13.5	13.5	13.5	13.5
22	4.4	5	8	13	13	13	13.5	13.5
27	5	6	12.5	13	14	14.5	14.5	14.5
32	3	4	7	11.5	11.5	12	12.5	12.5
37	10	10.5	12	12	13	14	15	15
42	5	6	9	12	12	13	13	13
47	6	7	10	14	15	16	16	14

Table 10 Pop raw stem height table

Stem diameter in cm

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
2	0.55	0.6	0.65	0.65	0.7	0.7	0.7	0.7
7	0.55	0.65	0.7	0.75	0.75	0.75	0.8	0.8
12	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7
17	0.4	0.45	0.55	0.6	0.7	0.7	0.7	0.7
22	0.6	0.6	0.65	0.65	0.65	0.65	0.65	0.65
27	0.7	0.75	0.9	0.95	0.95	0.95	1	1
32	0.5	0.55	0.6	0.75	0.75	0.8	0.8	0.8
37	0.7	0.8	1	1	1	1	1	0.95
42	0.4	0.45	0.5	0.65	0.7	0.7	0.7	0.7
47	0.5	0.6	0.65	0.65	0.65	0.7	0.75	0.7

Table 11 Pop raw stem diameter table

ROCK IMPONDERABILIA

Leaf number

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
3	42	38	50	72	75	80	75	93
8	13	13	26	42	42	36	49	61
13	14	14	29	42	44	45	50	60
18	14	20	27	37	51	52	64	62
23	13	12	24	30	38	42	43	53
28	35	49	63	66	59	61	70	80
33	16	19	35	45	46	56	61	86
38	10	11	26	33	37	33	37	42
43	13	17	30	38	39	45	49	57
48	11	16	31	35	37	39	41	45

Table 12 Rock raw leaf number table

Stem height in cm

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
3	8	9	11.5	15	16	16.5	16.5	14
8	6	8	10	15.5	17.5	18	19	19
13	6	7	12	15	16	17	17	17
18	7.4	11	14.5	17.5	18	19.5	20	20
23	5.5	6	7	10	13	14	14.5	17
28	7.5	9	9.5	12.5	13	13	13.5	14
33	8	10	13	15.5	18	18	20	19
38	6.3	6.5	8	9.5	14	16	17	17
43	6.4	7	12.5	17.5	18	18	18	17.5
48	7	7.5	10.5	14.5	15	15.5	15.5	16

Table 13 Rock raw stem height table

Stem diameter in cm

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
3	0.75	0.75	0.9	0.9	0.9	0.9	0.9	0.9
8	0.5	0.55	0.6	0.7	0.8	0.8	0.85	0.85
13	0.65	0.7	0.8	0.8	0.8	0.8	0.75	0.7
18	0.5	0.55	0.6	0.7	0.7	0.75	0.75	0.75
23	0.45	0.5	0.5	0.6	0.65	0.65	0.65	0.65
28	0.7	0.85	1	1	1	0.9	0.9	0.9
33	0.45	0.45	0.5	0.6	0.6	0.6	0.6	0.6
38	0.45	0.55	0.6	0.65	0.65	0.65	0.65	0.65
43	0.5	0.55	0.6	0.65	0.7	0.7	0.7	0.7
48	0.45	0.5	0.55	0.6	0.6	0.65	0.65	0.7

Table 14 Rock raw stem diameter table

CLASSICAL IMPONDERABILIA

Leaf number

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
4	39	44	57	59	55	57	80	109
9	11	13	34	50	53	45	60	70
14	14	13	24	39	38	51	55	83
19	23	26	41	48	51	53	63	87
24	25	32	39	42	49	49	59	84
29	13	23	26	35	37	43	45	64
34	13	23	33	45	46	41	49	55
39	12	17	31	43	43	48	57	72
44	49	66	61	67	69	80	95	105
49	12	11	28	34	40	40	50	64

Table 15 Classic raw leaf number table

Stem height in cm

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
4	10	10	16.5	19.5	19.5	19.5	19.5	19
9	6.5	7	10	15	16.5	17	18	17
14	5	5.6	9	15	16	17	17	17.5
19	5.5	7	14	16	16	16	16	16.5
24	6.5	6.5	12	13.5	14.5	14.5	14.5	14
29	4.5	7.2	11	14.5	14.5	13.5	14	13
34	6.5	8	13	19	20	20	20	19
39	5.5	5.5	7	12	14	14	14	13.5
44	7	8.5	14.5	15.5	15.5	15.5	15.5	15.5
49	4	4	5	8.5	13	13.5	13.5	13

Table 16 Classic raw stem height table

Stem diameter in cm

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
4	0.7	0.7	0.85	0.85	0.85	0.9	0.9	0.9
9	0.45	0.5	0.6	0.6	0.7	0.7	0.7	0.7
14	0.55	0.55	0.6	0.6	0.6	0.65	0.65	0.65
19	0.6	0.65	0.7	0.7	0.7	0.7	0.7	0.7
24	0.65	0.8	1	1.15	1.15	1.15	1.15	1.15
29	0.45	0.55	0.7	0.7	0.7	0.7	0.7	0.7
34	0.5	0.5	0.6	0.65	0.7	0.55	0.6	0.6
39	0.45	0.5	0.6	0.65	0.65	0.65	0.7	0.7
44	0.7	0.85	1	1.1	1.1	1.15	1.15	1.15
49	0.55	0.55	0.6	0.6	0.7	0.7	0.7	0.7

Table 17 Classic raw stem diameter table

PLACEBO

Leaf number

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
5	20	23	40	47	51	52	55	62
10	12	13	29	39	42	40	50	45
15	16	17	30	37	38	46	60	68
20	33	38	42	65	63	66	79	80
25	12	10	24	32	39	36	47	54
30	11	11	20	34	37	49	54	70
35	15	27	39	45	47	57	66	71
40	13	17	29	37	38	46	55	67
45	40	47	45	66	74	88	100	90
50	47	61	71	52	49	65	76	84

Table 18 Placebo raw leaf number table

Stem height in cm

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
5	9	10	12	17	19	19	19.5	20
10	6.3	6.5	8	15	18	18	17	17
15	7.2	8	12	15	16	14	14.5	15
20	10	11	14	18	18.5	18.5	19	18
25	5.6	7	9	15.5	17.5	18	18.5	17
30	4	4	6	10.5	12	13	14	14
35	5.5	7.5	13	15	15.5	17	17	15
40	4	7	12	17	17.5	17.5	17.5	16
45	6.5	10	13	15	17.5	18.5	18.5	18.5
50	8.5	12	16	18.5	19	19	16	16

Table 19 Placebo raw stem height table

Stem diameter in cm

Plants	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
5	0.6	0.6	0.7	0.75	0.8	0.8	0.8	0.8
10	0.45	0.5	0.55	0.6	0.65	0.65	0.65	0.65
15	0.65	0.7	0.75	0.75	0.75	0.8	0.8	0.8
20	0.75	0.75	0.85	0.9	0.9	0.8	0.8	0.8
25	0.5	0.5	0.55	0.6	0.6	0.6	0.65	0.6
30	0.45	0.45	0.5	0.7	0.7	0.7	0.7	0.7
35	0.5	0.5	0.55	0.65	0.7	0.7	0.7	0.7
40	0.4	0.45	0.5	0.65	0.65	0.7	0.7	0.7
45	0.65	0.7	0.75	0.8	0.85	0.85	0.85	0.8
50	0.7	0.8	0.9	0.85	0.8	0.85	0.85	0.85

Table 20 Placebo raw stem diameter table

APPENDIX G – IMPONDERABILIA REMEDY LIST

Gem essence (37):

Amethyst Immersion, Ametrine, Apatite Green Immersion, Aquamarine, Aquamarine Immersion, Black Opal Immersion, Blue Lace Agate, Clear Quartz crystal, Diamond Immersion, Emerald Immersion, Gold, Golden Beryl, Golden Topaz Immersion, Green Fluorite, Haematite, Iron Pyrites, Jade-green, Jet, Lapis Immersion, Moldavite, Moonstone, Moonstone Blue Immersion, Morion Immersion, Obsidian, Pearl Immersion, Peridot, Quartz Immersion, Rhodocrosite, Rhodonite Immersion, Rose Quartz, Ruby, Ruby Immersion, Sapphire Immersion, Spectrolite, Tiger's Eye, Tourmaline/Quartz and Turquose.

A Wauters (11):

Green, Indigo, Magenta, Orange, Pink, Red, Spectrum, Spectrum Combination, Turquoise, Violet and Yellow.

Light and colour (16):

Blue, Fluorescent Light, Green, Halogen light, Indigo, Laser – red, LED (white light), Light from energy saver, Orange, Purple, Rainbow, Red, Turquoise, Ultraviolet Light, Violet and Yellow.

Solar system, (23):

Eclipse Totality, Earth, Luna, Magnetic pol ambo combination, Magnetic field (Electro-magnetic field), Magnetis pol ambo, Magnetis pol. Arct, Magnetis pol aust, Magnetite, Milky Way, Noctiluca (Blue moonlight), Polaris (North star), Saturn light, Sol Africana, Sol Australis, Sol Britannic, Sunlight Blue (Prismatic blue from sunlight), Sunlight Green (Prismatic green from sunlight), Sunlight Orange (Prismatic orange from sunlight), Sunlight Purple (Prismatic purple from sunlight), Sunlight Red (Prismatic Red from Sunlight), Sunlight Yellow (Prismatic yellow from sunlight) and Venus Stella Errans (Venus Wandering Star)

Electronics and technology (24):

Broadband emission, Computer Emanation, Cordless Phone, Dolphin Sonar, Electricitas (80,000 volts), Electricitas (High Voltage Pylon), Laser Beam (2940 nm), Microwave 750 MHz, Mobile phone, Mobile Phone 1800MHz, Mobile Phone 900Mhz, Mobile Phone Mast G3, Magnetic Resonance Imaging Scan, Satellite tv, Radio Waves, Stonehenge, Tetra Mast Radiation, TV Emanations (Television Rays), Ultrasound (General), Ultrasound (Vaginal), V.D.U, Vacuum, Wi-Fi Radiation and X-ray.

Other (13)

Fire, Ignis Alc (Fire), Positronium, Quartz Rutilated Immersion Essence, Quartzite (immersion), Radiation Combination, Rhodochrosite Immersion, Summer solstice, Tempesta, Vanadinite Immersion Essence, Water, Wind (South-West) and Zircon Clear Immersion Essence.