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Nosodes and Sarcodes

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Nosodes and sarcodes are potentized preparations which are prepared according to homeopathic standards. Nosodes are prepared from inactivated diseased products of human, animal or vegetable origin or cultures of micro-organisms. In contrast, the source material for sarcodes comes from a healthy tissue, organ or secretion of humans or animals. As nosodes and sarcodes are prepared from body substance and discharge they have a peculiar affinity with the functions of the body and they are unique. Both nosodes and sarcodes act as prophylactics and can also be used for improvement of resistance, response to a remedy and for recuperation. The homeopathic nosodes can be used for treating residual infections (e.g. *Bacillinum* for tuberculosis) and as a prophylactic (e.g. *Influenzium* for swine flu) whereas sarcodes are used to help rebuild organs and tissues that may be diseased or malfunctioning (e.g. lymph, spleen).

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Homoeopathy was found by Samuel Hahnemann (1796). He started taking regular doses of *Cinchona* or 'the bark' (i.e. quinine). This, he said, produced all the symptoms of intermittent fever (malaria) but to a mild degree and without the characteristic rigors of that disease. This led Hahnemann to an idea that if a patient had an illness, it could be cured by giving a medicine which, if given to a healthy person, would produce similar symptoms of that same illness but to a slighter degree. This led to his famous aphorism, 'like cures like', which is often called the principle of similars[1]. The earliest experiments with nosodes were carried out by Constantine Hering[2] between 1827 and 1833. He performed the first proving of *Psorinum* on himself. Hering originated the method of using a miasmic agent as a basis for a remedy and it was he who coined the term "nosode". Nosodes are prepared from inactivated diseased products of human, animal or vegetable origin or cultures of micro-organisms. Sarcodes are remedies prepared from individual healthy organs or tissues, as well as from isolated bodily substances of human or animal origin. Nosodes and sarcodes are potentized isopathic preparations which are prepared according to homoeopathic standards. Use of nosodes and sarcodes in the treatment of diseased conditions is known as isopathy, organopathy, biotherapy or immunotherapy. The major difference between isopathy and homoeopathy is that homoeopathic remedies involve administration of prepared remedies from plant, animal or mineral origin whereas isopathy involves the administration of homoeopathically prepared remedies derived from the same material that is responsible for causing the disease or from individual healthy organs, tissues or bodily substances. Nosodes and sarcodes are prepared from body substances and discharges, hence they have a peculiar affinity with the functions of the body and they are unique.

Methodology

Nosodes

Nosodes are homoeopathic preparations obtained from diseased pathological secretions[2] or excretions and also from microbial cultures of viruses, bacteria and fungi (Table 1). They are processed from original stock which contains isolated microbes, diseased tissues and clinical materials from which the primary stocks are prepared.

Classification of Nosodes

Depending upon the nature of material used, nosodes may be divided into the following four groups[3]:

- N-I-Preparations made from bacterial endotoxins.
- N-II-Preparations made from microorganisms capable of producing exotoxins.

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Table 1—Marketed preparations of nosodes

Name	Source	Use
Anthracinum[5]	Spleen of cattle infected with *Bacillus anthracis.*	Suspicious insect bites, septic fever and gangrenous ulceration.
Diptherinum[9]	Exotoxin of *Corynebacterium diphtheria.*	Prophylactic and for post-diphtherial complications like paralysis and nose bleeding.
Bacillinum[5]	Prepared from tuberculous sputum.	Bronchitis, cough, cold eczema of eyelids and ringworm.
Medorrhinum[5]	From urethral discharge of gonorrhea patient.	Chronic rheumatism, edema of limbs and chronic catarrhal conditions in children.
Syphilinum[5]	Exotoxin of *Treponema pallidum.*	For sciatica, eye inflammation, mouth and skin sores.

- N-III-Preparations made from purified toxins.
- N-IV-Preparations made from microorganisms or diseased subjects.

Preparation of Nosodes

Step 1: Identification and procurement of source material

It is necessary to identify and document the authentic source material. The organisms (may include bacteria, virus, protozoa, parasites or fungi) or other biological materials can be sourced from academic or commercial source.

Source material/strain

Use the latest virulent or standard strains of organisms[4]. Resistant strains, combinations of various strains, fresh clinical samples or biological materials of diseased subjects are used when culture is not available.

Organism count

The count of the organism in the source material or in the mother source must be specified, achievable, and significant. The recommended organism count for making the nosodes suggested in HPI (Homoeopathy Pharmacopoeia of India) is 20 billion CFU[3].

Step 2: Nature of material

Depending upon the nature of material, i.e., whether organisms are capable of producing endotoxins, exotoxins, made from purified toxins or made from microbes, viruses, or clinical material from diseased subjects, the preparations are divided into four groups[3]:

Group N-I - Endotoxins: Preparations made from lysate of micro-organism capable of producing bacterial endotoxins, e.g. *Typhoidinum.*

Group N-II - Exotoxins: Preparations made from micro-organisms capable of producing exotoxins. The toxigenicity of the strain is established before use, e.g. *Diphtherinum.*

***Group N-III - Purified toxins*:** Preparations made from purified toxins. Purification of toxins is achieved by ultra filtration, gel filtration chromatography or by affinity chromatography, e.g. *Tuberculinum.*

***Group N-IV*:** Preparations made from micro-organisms/viruses/clinical materials from human convalescents or diseased subjects, e.g. *Anthracinum.*

Step 3: Removal of common co-infection/contamination

Purity of the source material has to be established. All possible contaminants must be removed. In case the source material being blood samples, they must be tested to rule out other known possible co-infections. In cases of Hepatitis C and HIV nosodes, possible co-infections such as gonorrhoea, syphilis, herpes, and tuberculosis should be ruled out. In case of pure cultures, this step can be omitted.

Step 4: Removal/separation of other components

In case of any nosode sourced from serum, serum expression, centrifugation, and/or filtration can be used to procure the organism from the source material. If nosode is sourced from the blood samples, the samples are subjected to centrifugation to obtain clear serum and filtration (Seitz filter) to get rid of cell debris, unidentified bacteria[4]. If the source material is obtained by scraping of parasite-infected animal or human tissues, then the pure parasite is isolated from large protein keratin component of skin by boiling the scrapings with potassium hydroxide (KOH) in water medium.

Step 5: Characterization of source material

Microorganisms need to be characterized in terms of strains, as per the latest available technology. In case of bacteria-strain characterization and for virus, typing is done, i.e., knowing the type and subtype of viruses.

Step 6: Safety

Stringent biosafety compliant environment is recommended with minimum handling using sealed containers and disposable auto-tip pipettes.

Step 7: Preparation of mother tincture

Tincture is prepared with equal parts by weight of drug material and alcohol[3] (sometimes alcohol: water in ratio 9:1) Drug substances that are soluble in alcohol or distilled water are succussed. Substances which are insoluble are prepared by Hahnemann method of trituration, i.e., drug substance is triturated with solid vehicle like lactose in the ratio 1:10. These are then converted into a liquid potency and further potentisation is carried out by the process of succussion.

Step 8: Dynamization of potencies

- One part of the mother tincture is diluted in 99 parts of alcohol or in a mixture of water and alcohol.
- This liquid is then succussed 10 times in its bottle by firmly hitting the bottle's base against a firm but resistive surface such as the palm of a hand or a leather covered book. The resulting liquid is called 1C potency, "1" referring to its first stage of dilution and the Roman numeral, "C", referring to its 1:100 dilution ratio.
- One part of this 1C potency is again diluted and succussed in 99 parts of alcohol or water and alcohol mixture to produce a 2C remedy.
- This serial process of dilution and succussion, called potentisation, is further repeated to produce increasingly higher potencies of the remedy (Table 2).

The process of succussion activates the potency or vital energy[6] (i.e., medicinal property in the form of energy) of the diluted drug substance, and that successive dilution increases the "potency" of the preparation.

Step 9: Safety check for human use

It is required to establish the safety of the nosodes. Test for sterility for aerobic and anaerobic organisms should be carried out before issuing nosodes for therapeutic use or for manufacturing of higher potencies[7].

Table 2—Homoeopathic dilutions

Designation	Dilution rate
X- Decimal scale	1/10
C- Centesimal scale	1/100
M- Millesimal scale	1/1000
LM- 50 Millesimal scale	1/50,000

Step 10: Lyophilization

Lyophilization of the original stock to allows remaking of the nosodes in future[4], without any need to repeat initial steps. In future, a centralized depository system could be made where standardized raw materials can be preserved for future use.

Commonly used nosodes

Tuberculinum

Tuberculinum[8] is a homeopathic preparation made from sterilized *Mycobacterium tuberculosis*. Bacilli are removed from people afflicted with tuberculosis. The bacilli are sterilized and then they are mixed with alcohol to form a mother tincture from which they are succussed into various potencies. It is commonly used to treat respiratory tract ailments such as enlarged tonsils, cough, bronchitis, cold, and hay fever. It can also be recommended for arthritic pains and nervous weakness.

Influenzinum

Influenzinum[8] is prepared from the viral strains of influenza. They are diluted, potentized and are completely safe and non-toxic.

Influenzinum is commonly used for the following:

- Strengthening the body and increasing its resistance to the flu viruses.
- Relieves flu symptoms such as body aches, nausea, chills, fever, headache, sore throat, cough and congestion.
- Enforces the flu vaccine's action and alleviates its adverse effects.

Psorinum

Psorinum is prepared from the fluid of blisters from scabies of infested skin. Once diluted and potentised none of the original fluid remains but the energetic effects acts as a remedy. Psorinum[5] has the ability to treat conditions such as acne, allergy, asthma, bronchitis, cold, depression, dermatitis and eczema. It is also useful for treatment of headache, insomnia, middle ear infection, pharyngitis, phobia and psoriasis.

Sarcodes

Sarcodes are homoeopathic preparations obtained from healthy animal tissues and secretions[2] that contain biological molecules which have specific physiological functions in humans (Table 3).

Preparation of Sarcodes

Step 1: Nature of material

Sarcodes are prepared from the following sources[2]:

1. Sarcodes from whole endocrine glands, e.g. *Thyroidinum*

Table 3—Marketed preparations of sarcodes

Name	Source	Use
Pancreatinum[5]	From pancreas of beef containing digestive enzymes.	Intestinal indigestion and lienteric diarrhoea.
Thyroidinum[8]	From healthy thyroid tissue of sheep or calf.	Anaemia, muscular weakness, psoriasis, tachycardia and goitre.
Pepsinum[5]	From enzyme produced in stomach of hog or pig.	Indigestion with pain in gastric region and diarrhoea due to indigestion.
Adrenalinum[10]	From secretions of the adrenal glands of cattles.	Slow pulse rate, strengthening of heart beat and muscle spasms.

2. Sarcodes from healthy secretions, i.e., hormones and enzymes, e.g. *Pepsinum*
3. Sarcodes from extract, e.g. *Pancreatinum*
4. Other sarcodes, e.g. *Cholesterinum*

Step 2: Safety

Operation is carried out in stringent biosafety compliant environment with minimum handling using sealed containers and disposable auto-tip pipettes.

Step 3: Removal/Separation of other components

Filtration (Seitz filter) is done to get rid of cell debris, unidentified bacteria, and large protein particles. If the source material is obtained as scraping of animal or human tissues, the keratin component of skin is removed by boiling the scrapings with potassium hydroxide (KOH) in water medium.

Step 4: Preparation of mother tincture

Soluble substances are infused directly in alcohol[3] or in an alcohol/water mixture. Insoluble substances must be ground down with lactose, using a pestle and mortar in a prescribed manner. This process is known as 'trituration'. Trituration proceeds until the ingredient has become fine enough to be soluble in alcohol or in an alcohol/water mixture. The resulting solution in both cases is known as the mother tincture[3,6].

Step 5: Dynamization of potencies

- One part of the mother tincture is diluted in 99 parts of alcohol or in a mixture of water and alcohol.
- This liquid is then succussed 10 times in its bottle by firmly hitting the bottle's base against a firm but resistive surface such as the palm of a hand or a leather covered book. The resulting liquid is called 1C potency, "1" referring to its first stage of dilution and the Roman numeral, "C", referring to its 1:100 dilution ratio.
- One part of this 1C potency is again diluted and succussed in 99 parts of alcohol or water and alcohol mixture to produce a 2C remedy.
- This serial process of dilution and succussion, called potentisation, is further repeated to produce increasingly higher potencies of the remedy.

Step 6: Safety check for human use

Test for sterility for aerobic and anaerobic organisms should be done before issue of any sarcode, for therapeutic use or for manufacturing of higher attenuations.

Step 7: Lyophilization

Lyophilization of the original stock is done so that sarcodes can be prepared in future, without any need to repeat initial steps[4]. A centralized depository system preserves standardized raw materials for future use.

Experimental and clinical studies

A study was carried out to evaluate the effect of *Trypanosoma cruzi* biotherapy 17dH (BIOT) against *T. cruzi* infection on mice of different ages. Treatment with the medicine produced from *T. cruzi* modulated the inflammatory response with increased apoptosis and decreased serum levels of TGFb (Tumor growth factor). However, this modulation causes an increase in parasitemia, depending on the age of the animal[11].

An experimental study was carried out on Leptospirosis. A highly potentised homoeoprophylactic formulation was prepared from dilutions of circulating strains of Leptospirosis, i.e., *Leptospira bacterium, L. kirschneri* and *L. interogans*. This formulation was administered orally to 2.3 million persons over 1 yr of age from the provinces of Las Tunas (LT), Holguin (HG) and Granma (GR) in eastern region of Cuba, independent of their physical, psychological or social status were considered as risk group and target population. The homoeoprophylactic administration was strongly associated with a drastic reduction of disease incidence resulting in complete control of the epidemic. The results support the use of homoeopathic prophylactic formulations as a feasible strategy to help control epidemic situations[12]. An experiment was carried out to study the effects of *thymulin* 5cH in the experimental murine Leishmaniasis. Male Balb/c mice

were orally treated with *thymulin* 5cH during 60 days, after the subcutaneous inoculation of 2×10^6 units of *Leishmania* (L.) *amazonensis* into the footpad. Inflammatory cell suspension from peritoneal cavity, spleen, local lymph node and infected subcutaneous tissue were harvested after 2 and 60 days from infection to quantify the inflammation cells. Treated mice presented increase in the peritoneal and spleen B1 cells percentage. More organized and exuberant inflammation response in the infection site, and decrease in the number of parasites per field inside the primary lesion was observed. *Thymulin* 5cH is able to improve B1 cell activation and *Leishmania* (L.) *amazonensis* phagocytosis efficiency in mice[13]. A study was carried out to evaluate the immunological and parasitological effects of biotherapies that were prepared from mouse serum that was uninfected (sarcode: $BSNI_{13cH}$ group) and chronically infected with the Y strain of *T. cruzi* (nosode: BSI_{13cH} group), dynamization 13cH, in male Swiss mice at 28 days of age. On days 0 and 12 after infection, the $BSNI_{13cH}$ group exhibited a pronounced Th1 response that was attributable to a reduction of interleukin-4 (IL-4) concentrations, with no significant differences in interferon-γ (IFN-γ) concentrations and a decrease in IL-17A concentrations on day 0. However, this cytokine balance was not sufficient to alter blood parasitemia in treated animals, likely because of a decrease in IFN-γ concentrations on day 8. In contrast, the BSI_{13cH} group presented a pronounced Th2 response that was attributable to an increase in IL-4 concentrations and a decrease in IFN-γ concentration compared with the control and $BSNI_{13cH}$ groups. This cytokine balance suppressed the immune response to *T. cruzi* in murine infection, resulting in a significant increase in blood parasitemia, decrease in the patent period and subsequently a decrease in survival time. The results indicate that these highly diluted medications differentially modulate the immune system and represent a substantial contribution to the field of homoeopathic medicine, providing evidence of the action of these medications[14]. A clinical trial was conducted in the Brazilian Public Health System in Petropolis (BPHSP) with children aged from 1 to 5 yrs old. The medications used were mainly selected based on *in vitro* experiments (InfluBio), and in successful qualitative clinical experiences (Homeopathic Complex). Following informed parental consent, subjects were randomly distributed, in a blind manner, to three experimental groups: Homeopathic Complex, Placebo, and InfluBio. BPHSP health agents collected flu and acute respiratory infection symptomatic episodes monthly following the established protocol. Out of the 600 children recruited, 445 (74.17%) completed the study (149: Homeopathic complex; 151: Placebo; 145: InfluBio). The number of flu and acute respiratory infection symptomatic episodes detected in this clinical trial was low. In the first year post-intervention, 46/151 (30.5%) of children in the placebo group developed 3 or more flu and acute respiratory infection episodes, while there was no episode in the group of 149 children who used Homeopathic Complex, and only 1 episode in the group of 145 (1%) children who received InfluBio. These results suggested that the use of homeopathic medicines minimized the number of flu and acute respiratory infection symptomatic episodes in children, signalizing that the homeopathic prophylactic potential should be investigated in further studies[15].

Indications for Nosodes and Sarcodes

- Administered as a second prescription[17] if the indicated medicine fails to bring the desired effect, e.g., Bone pain can be cured by administering *Syphilinum* in high potency after administration of Calc-carb.
- As an intercurrent remedy: When the patient is in a state of exhausted reactability due to prolonged illness, these can be given as an intercurrent medicine, e.g., in case of prolonged illness of typhoid, *Pyrogenium*[5] can be given as an intercurrent remedy along with Baptisia.
- Nosodes act as better prophylactics[16] and give the body a prior training of how to deal with future infections, e.g. *Diphtherinum* acts as a prophylactic for Diphtheria.
- As tautopathic agents: Tautopathy is a method of curing or removing the bad effects of the drug by iso-intoxication[17], i.e., identical agent is prepared in potentised form, e.g. Tautopathically prepared Vitamin B2 in varying potencies for overuse of Vitamin B complex.
- In prolonged convalescence: When recuperation period of a patient is prolonged, e.g. Prescription of *Typhoidinum*[5] during the a febrile or minimum fever period in a complicated prolonged case aids in recovery without any complications.
- As a complementary medicine: Nosodes have proved to be better complementaries along with traditional medicines, e.g. *B. coli*[5] can be administered as complementary along with homoeopathic medicines *Apis* (honey bee poison)

and Nat-mur (Sodium chloride) for urinary tract infections.

- When the patient has never been well since[17] attack of a disease, e.g. when the patient complains of not being well since the attack of influenza few months back, in such cases *Influenzinum* is administered for complete cure.

Contraindications

Nosodes and Sarcodes should not be administered in the following stages of a disease:

- In the active phase (incubation period) of an acute disease.
- In the explosive stage of a miasm[17], i.e., a supposed predisposition to a particular disease either inherited or acquired.
- During the active phase of a recurrent attack.
- In an infectious stage, e.g. do not use *Tuberculinum*[5] in an established case of Tuberculosis.

Conclusion

In this age of antibiotics, it is becoming more and more apparent that however useful the antibiotics may appear to be; they are often accompanied by undesirable side-effects and render the patients allergic to their future use. Whereas nosodes and sarcodes like all other homoeopathic remedies are very easy to administer and have no side effects. They also help in regulating the organs of the body to function in a normal and healthy way and to treat and cure the patients as a whole.

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