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Nosodes - A Jewel in Homoeopathy : Needs Scientific a Basis of Pharmacological Proving

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Abstract : "Nosodes are homeopathic remedies prepared by source from microbial culture, viruses, fungi, pathological secretions, and excretions of disease individuals. They are used in the treatment of various acute, intercurrent, and chronic diseases in homeopathic practice. All the homeopathic remedies were proven long back by evaluating their effect on healthy individuals and notifying volunteers subjective and objective symptoms. There is a paucity of the available scientific basis for the method of their preparation, standardization, purity, efficacy, and mechanism of action of these remedies Even after advancements in modern technologies, no additional studies have been conducted to prove their all-aforementioned characteristics that limit the acceptance of these remedies in modern science. As per the regulatory requirement, homeopathic remedies are included in the Drug and cosmetic act 1940, therefore it's necessary to produce data on toxicity in laboratory animals as per Schedule Y if anyone needs to introduce a new drug or formulation clinically. The main aim of this review is to compile the essential experimental in vitro and in vivo pharmacological findings of nosodes to trace out available literature, mode of action, and efficacy/toxicity profile to open another area of research for young researchers.

Key Words : Nosodes, Homeopathy, Pharmacology, *in vitro*, *in vivo*, Psorinium, Tuberculinum, Carcinocinum.

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1. Introduction

Nosodes are broad-spectrum, widely used, potentized isopathic preparations that homeopaths use in regular clinical practice to treat various diseases [1,2]. All the nosodes are prepared by homeopathic standards of drug preparation. In the homeopathic system of medicine, remedies are prepared by a process termed potentization or dynamization. The process of potentization or dynamization helps the crud drug material open to potential nanoparticles and relatively nullify the toxic effect of the crud drug[2]. Isopathy is an the approach in homeopathy that used nosodes in the treatment of acute and chronic diseases. In isopathy, the remedies are prepared from the the same material that is capable of producing a disease condition using the potentization process.

In homeopathic practice, nosodes are an essential part. They are frequently used by homeopaths as common, intercurrent, chronic, and acute remedies depending on the background knowledge, experience, and expertise of prescribing physician [3]. The first nosode was prepared by Dr. Hering in 1830. Between 1875 to 1925, most of the other nosodes were prepared [4]. Lack of availability of advanced and sophisticated limits the standardization process of nosodes concerning their safety, efficacy, characterization, purity, and microbial count. In 1901 Homoeopathic Pharmacopeia of the United States established guidelines for the preparation of nosode. The commonly used major nosodes like Psorinium, Medorrhinum, Symphilinum, Tuberculinum, pyrogenic, carcinocinum, and variolinum are developed before 1901. After that none of this, these nosodes were remade by using guidelines[2]. Even a paucity of literature available on the method of preparation, proving, standardization, purity, and efficacy limit the acceptance of nosode in modern science. All homeopathic medicines including nosodes are based on the principle of "Similia, similibus, curentur" which means the "like cure by like" concept introduced by Dr. Samuel Hahnemn is a 'founder of homeopathy [1]. Several homeopathic remedies are being used clinically for decreasing the severity, complete elimination of disease state, and prevention starting from a simple cough or cold to major diseases like cancer, asthma, autoimmune diseases, rheumatic disorders, and metabolic diseases. These remedies are prescribed by homeopaths who understand the subjective and objective symptoms of a patient [3]. All the available homeopathic remedies were proved by direct administration of prepared remedies to healthy volunteers and notifying the subjective and objective symptoms, while the efficacy of medicine was proved by administrating them, disease individuals.

In the current scenario, the basic requirement to introduce any new drug or formulation clinically before scientific proofs of preclinical toxicology studies, therapeutic efficacy, mode of action, and a metabolic pathway is the utmost requirement. As per the Indian regulatory requirement, homeopathic remedies are also included in the Drug and Cosmetic Act of 1940[5]. Therefore, it becomes compulsory to produce data on each drug for its therapeutic/toxic effect in laboratory animals as per Schedule Y[6]. However, to establish the the scientific basis for efficacy and mode of action of nosodes it is crucial to prove them using a series of invitro as well as invivo preclinical models in pharmacology. After the advancement in

scientific knowledge in the field of in-vitro and in vivo pharmacology, and molecular biology many Indian and foreign scientists are researching the unproven part of homeopathic medicine. But the number of scientists working proving of homeopathic remedies from a pharmacological perspective is less as compared to a scientist working on modern medicine.

The main objective of this review is to compile the important experimental in vitro and in vivo pharmacological findings of nosodes to trace out their available literature, mechanism of action, and efficacy/ toxicity profile as well as to open a new area of research for researchers.

2. Materials and methods

Nosodes are the homeopathic remedies sourced from diseased pathological secretions or excretions, a clinical sample of microbes including bacteria, fungi, and viruses or parasites diseased tissues (cancerous tissue), or decomposition product of humans and animals [1,2,7].

2.1. Definition

The term nosode is related to the Greek prefix "noso" means disease, therefore the prefix noso is added to the word which has a characteristic relation with the disease. The term nosode is also connected to the Latin word "noxa" which means damage indicating the use of noxious material as a source of remedy[3,7].

2.2. Classification of nosodes

The nosodes are divided into four groups depending on the source material used in their preparation[1,8]

- N-I- Preparations made from bacterial endotoxin
- N-II- Preparation obtained from microorganisms having the ability to produce exotoxins
- N-III-Preparations sourced from purified toxins
- N-IV- Preparations obtained from a a microorganism or diseased subjects. Based on their sphere of action and clinical use, they are classified as [9] :
- Basic nosodes- Psorinum, Tuberculinum- Bacillinum, Syphilinum, Medorrhenium, and Carcinosin
- Exanthem nosodes-Morbillinum, Parotidinum, BVAccinium, Pertussin, Anthacenum, Variolinum etc.
- Isopathic nosodes- Sterptococcin, Malaria Officinalis, etc.
- Intestinal nosodes – Batch nosodes- B.Morgan, Morgan pure, Morgan gaetner, Dysntery co., B. proteus, Baccillus No. 7, etc.
- Autogenous nosodes- Prepared from secretions and discharges from the pathological tissue or organ of the patient himself for threatening disease condition (Tautophathy)
- Lesser used – Ambra grisea, cholera toxin 90, Secale cor, Eosinophillinum, Histamine, Typhiodinum, etc.
- The Oscillococcinum and HIV nosode were newly added nosodes prepared from newer microorganisms like leprosy Human immunodeficiency nosode.

2.3. Method of preparation of nosodes

Homeopathic remedies are prepared by a series of systemic dilutions of starting material and a succession (a forceful shaking) that leads to minimization, relatively nullifying the toxic effect of crude drug substances and increasing their curative property. The below-mentioned steps are involved in the preparation of nosodes :

Step 1 : **Identification, authentication, and procurement of source material :** It is of prime importance to identify, authenticate and document the starting material. The standard test must be used to confirm the exact microorganism. The microorganisms and biological material is procured from various commercial and noncommercial sources. Most commonly latest virulent or standard microorganism strains are used, when microbial culture is not available fresh clinical samples or biological material of the disease subject is used for the preparation of nosode. The homeopathy pharmacopeia of India (HPI) had given a limit for recommended the microbial count is 20 billion CFU.

Step 2 : **Nature of material :** The homeopathy Pharmacopoeia of India divided the nosode into four categories depending on the nature of the source material and whether the organism used in the preparation of nosode can produce endotoxins, exotoxins, viruses, or clinical material (Sputum, Urine, Blood, Secretions, and Excretions) from disease subject.

- N -I – Remedies prepared by using lysates of microorganisms that can produce bacterial endotoxins e.g. Salmonella Typhimurium, Escherichia Coli, and Staphylococcus
- N-I – Nosodes made from the source microorganisms capable of producing exotoxin, e.g. Corynebacterium diphtheriae.
- N – III – Remedies prepared using purified toxins
- N-IV – Preparation made from the clinical material/microorganisms/viruses of the disease subject e.g. Variolinum, Influenzinum, Psorinum, Syphilinum, HIV nosode, Hepatitic C nosode.

Step 3 : **Removal of common co-infection / contamination** This process is done to ensure the purity of the preparation. The process involves the elimination of all possible contaminants from the source material. This step is only followed for the source material taken from a clinical sample of a diseased subject, if the source material is pure culture this step is not required.

Step 4 : **Removal/ separation of other components** Depending on the nature of starting material removal/separation of another the component is carried out using filtration, centrifugation, scraping, etc. E.g. If the starting material for the preparation of nosode is serum, then expression, centrifugation, and/or filtration of serum sample is carried out to obtain the pure organism. The cell debris and unknown bacteria from the blood sample (if the source material) is removed by the process of centrifugation and filtration. For filtration generally, Seitz filters are used. To isolate the pure parasite sourced from parasite-infected animal-human tissue the skin of the infected the subject is used to scrap the source material. Then these scrappings are boiled with potassium hydroxide solution using water as a medium.

Step 5 : **Characterization of source material** In this step, the source material is characterized concerning its genotype and strain using the latest technologies.

Step 6 : **Safety** The handling of the source material is carried out in a strict biosafety compliment an environment with the least handling using sealed containers and disposable auto-tip puppets.

Step 7 : **Preparation of mother tincture** This step is the defined quantity of pure culture of one strain or mixed strain used in the preparation of nosode. The alcohol, a mixture of alcohol in water and water for injection are used as a vehicle for the preparation of the mother tincture. For source materials that are soluble in alcohol mother tincture is prepared by mixing equal parts by weight of drug material and alcohol or sometimes alcohol : water (9 :1) ratio and the mixture is succussed. The source material that is insoluble in alcohol is prepared by means Hahnemann method of trituration. In this method, the starting material is triturated with solid vehicle lactose in a 1 :10 ratio. Afterward, this solid mixture is converted into liquid potency and the process of succussion and potentization are performed. The the mother tincture is denoted by Symbol 'Q'.

Step 8 : **Dynamization of potencies** The process of serial succession and dilution is referred to as dynamization or potentization. "1C" potency is prepared by mixing one part of the mother tincture in 99 parts of alcohol or a mixture of water and alcohol. Further, the obtained liquid is succussed 10 times in a bottle by firmly hitting the base of the bottom of a leather-covered book. This mixture has a dilution ratio of 1 :100 (1C). One part of 1c potency is again diluted and, succussed in 99 parts of alcohol or water and the water mixture produces 2C potency. This process is further repeated to produce desired potencies.

Scale	Dilutionrate	Notation
Decimal	$1:10$	X, D, DH
Centesimal	$1:100$	C, CH, CK
Millesimal	$1:1000$	M
50 Millesimal	$1:50,000$	LM

Step 9 : **Safety checking for human use** The safety of nosodes is confirmed by performing sterility testing mentioned in the Indian Pharmacopoeia and European pharmacopeia for aerobic and anaerobic bacteria.

Step 10 : **Lyophilization** This process is performed for future use of the original stock solution for preparing nodoses.

3. Conclusion :

Conclusively no proper scientific explanation has been provided to date about the mechanism of action and efficacy of nosode, available studies only put some light on the acceptance of the health claim of nosodes scientifically. So the preclinical study of the nosode is required to prove efficacy and mechanistic. The preclinical pharmacological study not only provides information on the efficacy and possible mechanist approach of drug action of homeopathic nosodes but also serves as scientific proof or justification for the clinical use of these remedies as well as supports a homeopathic system of medicine scientifically in the scientific fraternity in a more satisfactory way. A homeopathic system of medicine has tremendous scope in preclinical pharmacology to prove its efficacy, mode of action using invitro and/or in vivo study models, and also from standardization, method preparation point of view of nosodes using modern tools, and available technology.

4. Acknowledgement

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Name of Nosode [22-27]	Source material [22-27]	Uses [22-27]	Preclinical experimental studies	References
Psorinum (Queen of Antipsorics)	Sero-purulent matter (containing mite Sarcoptes scabiei) in a scabietic the vesicle of infected skin Epidermoid efflorescence of pityriasis The salt forms the product of psora	Allergy, asthma, bronchitis, cold, depression, dermatitis, eczema, acne, headache, insomnia, mild ear infection, psoriasis	The therapeutic evaluation of psorinum 30CH in combination with other homeopathic remedies was conducted in 16 dogs affected with canine oral papillomatosis. The result finding showed early recovery and a significant decrease in the oral lesion in the group treated with the homeopathic combination compared to the placebo- treated group. The cell viability assay of Psorinum 6X was performed using anticancer cell lines A549, HepG2, and MCF07 using MTT assay. Psorinum 6X inhibited cell proliferation at 24 hours and arrested the cell cycle at the sub-G 1 stage of the A549 cell. It was found that psorinum 6X promotes apoptosis of A549 cells by up-and-down-regulation of p53, caspase-3, Bax, and Bcl-2.	10,11
Tuberculinum	From the sputum of a tubercular patient Made from sterilized Mycobacterium tuberculosis culture Pus with bacilli are removed from tubercular abscess patient	Respiratory tract ailments tonsilitis, bronchitis, cold, hay fever	Preparation, standardization, and in vitro safety testing of polyvalent (multistrain) and univalent Mycobacterium nosodes was carried out by Suvarna Joshi et. al prepared nosode did not show growth of mycobacterium above the 5C potency, 30C nosode was found to be free from any organism and DNA material in in-vitro studies, indicating safe use and handling of Univalent and polyvalent nosode.	12
Syphilimum (Leutinum)	Prepared from syphilitic discharge containing Treponema pallidum spirochaete bacterium from the primary chancre	Sciatica, eye inflammation, mouth and skin sores, Rheumatic pain, chronic skin eruption		7
Medorrhinum (Glinicum)	Prepared from the purulent discharge of a blennorrhagic patient having gonorrhea, the discharge contains Neisseria gonorrhoeae cocci	Suppressed gonorrhoeae, Chronic urethritis, eczema of buttocks in baby, gonorrhoeae	Medorrhenium was evaluated using FCA induced rheumatoid arthritis model in rats. Medorrhenium significantly decreases the serum TNF- α level, expression of II- 1β, Il 6 level, and expression of NF- KB compared to the CFA control group. This study's finding revealed that medorrhenium ameliorates rheumatoid arthritis in experimental animals.	13

Name of Nosode [22-27]	Source material [22-27]	Uses [22-27]	Preclinical experimental studies	References
Carcinocin	Biopsy tissue of adenocarcinoma of the urinary bladder, biopsy tissue of adenocarcinoma of the intestine, biopsy tissue of Scirrhous Carcinoma of the breast, biopsy tissue of squamous carcinoma of the lung	Lung, Breast, liver, intestine, urinary bladder cancer, abscess, acne, asthma, bronchitis, chronic fatigue syndrome, colitis, diabetes, dysmenorrhea, insomnia, moles, ovarian cysts, rectal prolapse, Sinusitis, premenstrual syndrome	Carcinocin 200CH was used in the treatment of p-Dimethylamineoazoenzene-induced liver cancer in experimental animals, study findings showed that carcinocine shows amelioration hepatocarcinoma in mice. Carcinocin 1000C was evaluated for its anticancer potential against prostate and breast cancer using DU-145, LNCaP, MAT- Lylu, and MDA-MB-231 cells by measuring cell growth and gene expression (Bax, bcl-3, bcl-x, caspase-1, caspase-2, caspase-3, Fas) by MTT assay and multiprobe ribonuclease protection assay. In this study, the carcinogen did not show an accountable effect on cell growth and gene expression in vitro studies. Carcinocin 30C was tested for its antidiabetic potential using streptozotocin-induced beta cell dysfunction in mice and in vitro using a culture of islets cells to evaluate the the functioning ability of islets.	14–17
Diptherinum	Serum consisting of live attenuated Diptherium bacilli Diphtheritic membrane sourced from a throat swab of a patient suffering from diphtheria	Prophylactic and curative of diphtheria, chronic tonsillitis, epistaxis		7
Pyrogenum (Artificial sepsin)	Decomposed lean beef, for 2 weeks beef allowed to stand in the sun and then potentized.	Septic fever, typhoid, conditions associated with poisoning, offensive discharge, or secretions of the body	Pyrogenium 200Ch and 1000Ch were evaluated for their antipyretic activity using Baker's yeast model in rabbits. At given potencies pyrogenium significantly reduced fever in treated rabbits compared to the negative control group.	18
Staphyllococcinum	Endotoxine of Staphalococcinum aureus	Acidity, toothache, acne, apyjae, arthritis, dermatitis, fever, headache, urinary tract infection	Staphallococcinum 30C, 200C, and 1M dilution showed antibacterial activity against Staphylococcus aureus. Compare to 30C and 1M dilution 200C dilution of staphalococcinum showed the best antibacterial potential.	19

Name of Nosode [22-27]	Source material [22-27]	Uses [22-27]	Preclinical experimental studies	References
Hydrophobinum (Lyssin)	The saliva of a Rabid dog	Corns, Diarrhea, dysentery, Leucorrhea, Landry's paralysis, neuralgia, hydrophobia	-	7
Anthracinum (Anthrax poison)	The spleen of cattle affected by anthrax	Septic inflammation, malignant ulcers, burning pain	-	7
Influenzinum	A nasal smear of a patient having influenza and containing the virus of Orthomyxoviridae	Flue like symptoms	-	7
Malaria Officinalis	A peat or decayed vegetable matter, taken from a marsh during dry weather	Cough, diarrhea, vertigo, nausea, malaria, liver infection, neuralgia	In vitro antimalarial activity of malaria officinalis was observed using a β-hematin formation assay. The results of this study showed the inhibition of hemozoin in the drug- the treated group is greater than in the chloroquine-treated group of animals. 30C and 200C potencies were utilized to evaluate the in vivo schizonticidal activity in mice using Peter's 4-day test for Plasmodium berghei. 30C potency of nosode shows considerable antiplasmodial activity against P. berghei compared to 200 C potency.	20,21
Ambra grisiea	Belly of the sperm whale-physic/macrocephalus	Abdominal pain, weakness, hearing loss, convulsion		7

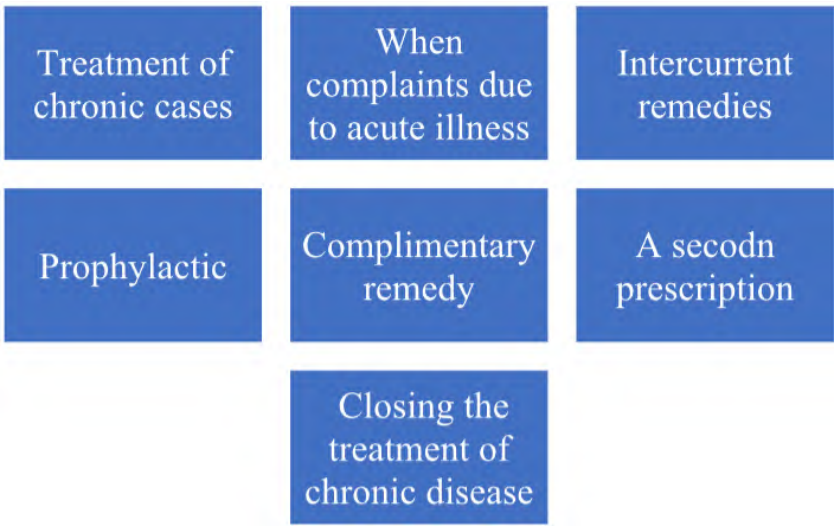

Figure 1 – Distribution of student nurses with regard to their residence.

5. References

1. Sankar K, Jadhav AP. Nosodes and Sarcodes. 2017 ;16(1) :158-163
2. Shah R. Scientific method of preparing homeopathic nosodes. Indian Journal of Research in Homoeopathy 2014 ;8(3) :166-173
3. Arora B. Use of Nosodes in Homeopathic Clinical Practice : A Survey [Homepage on the Internet]. 2015 ;8-13
4. HOMOEOPATHIC PHARMACOPOEIA OF INDIA Preface to E-book Combined Volume-I st to IX th (Revised & Augmented). Govt. of India, Ministry of Health and family welfare dept. of Ayurveda,Yoga, & Naturopathy, Unani, Siddha and Homoeopathy 2016 ; 1-1342
5. Government Of India Ministry Of Health And Family Welfare (Department Of Health) The Drugs And Cosmetics Act And Rules The Drugs And Cosmetics Act, 1940 (23 Of 1940) The Drugs And Cosmetics Rules, 1945 List Of Abbrevia- Tions Used
6. Schedule Y(ammended version) - CDSCO. 2014 ; 1 -48
7. Ali M. A Study of Nosodes & Sarcodes in Homoeopathy [Homepage on the Internet]. Available from : www.similima.com 1-42
8. Nayak D, Varanasi R. Homoeopathic nosodes, a neglected approach for epidemics : A critical review. Indian Journal of Research in Homoeopathy. 2020 ;14(2) :129–135.
9. Galande DrTB. Nosodes and Their Indications in Homoeopathy. International Journal of Advanced Research in Science, Communication and Technology 2021 ;176–181.
10. Mondal J, Samadder A, Khuda-Bukhsh AR. Psorinum 6× triggers apoptosis signals in human lung cancer cells. J Integr Med 2016 ;14(2) :143–153.
11. Raj PAA, Pavulraj S, Kumar MA, Sangeetha S, Shanmugapriya R, Sabithabanu S. Therapeutic evaluation of homeopathic treatment for canine oral papillomatosis. Vet World 2020 ;13(1) :206–213.
12. Joshi S, Mukerjee S, Vaidya S, Talele G, Chowdhary A, Shah R. Preparation, standardization and in vitro safety testing of Mycobacterium nosodes (Emtact- polyvalent nosode). Homeopathy 2016 ;105(3) :225–232.
13. Singh S, Karwasra R, Nayak D, Kumar Khurana A, Manchanda RK. Amelioration of experimental rheumatoid arthritis by selected ultra-diluted preparations by down-regulating increased expression of TNF-α & IL-6. 2021 ;20(4) : 956-964
14. Thangapazham RL, Gaddipati JP, Rajeshkumar N V., et al. Homeopathic medicines do not alter growth and gene expression in prostate and breast cancer cells in vitro. Integr Cancer Ther 2006 ;5(4) :356–361.
15. Dandanayakula R, Kotikalapudi N, Gouri VG, Pothani S, Venkatesan V, Venkate-San V. CARCINOSIN 30 C PROTECTS ISLETS AGAINST STZ INDUCED BETA CELL DYSFUNCTIONS. World Journal of Pharmaceutical Research World Journal of Pharmaceutical Research SJIF Impact Factor 5 [homepage on the Internet] 2016 ;01(01) :753–768.
16. Jyoti Biswas S, Pathak S, Bhattacharjee N, Kumar Das J, Rahman Khuda-bukhsh A. Efficacy of the Potentized Homeopathic Drug, Carcinosin 200, Fed Alone and in Combination with Another Drug, Chelidonium 200, in Amelioration of p-Dimethylaminoazobenzene-Induced Hepatocarcinogenesis in Mice. 2005 ;11(5) :839-854
17. Kindelmann G. Ultra-high dilutions of homeopathic remedies alter cell viability and induce apoptosis in the MCF-7 human-cancer-cell-line in an in vitro environment. Homeopathy 2016 ;105(1) :31.
18. Ahmad S, Abbasi WM, Rehman T. Evaluation of antipyretic activity of Belladonna and Pyrogenium ultrahigh dilutions in induced fever model : Antipyretic effects of Belladonna and Pyrogenium. J Complement Integr Med 2019 ;16(1) ;1-6