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#### **Title: Homoeopathic Perspective In Post Covid Mucormycosis**

Authored By:- Dr. Priya Singh

Assistant Professor, Bakson Homoeopathic Medical College and Hospital

#### **ABSTRACT:**

The term mucormycosis was given by RD Baker in 1957 and is the common name given to different diseases caused by the fungi of the order Mucorales. It comes from 'mucor' meaning moldy and 'mycosis' signifying fungal infection. Mucormycotic fungal infection occurred as a post complication in coronavirus patients. The whole nation was terrified with the rising incidence of the black fungus suddenly. However, it needs mention that the homoeopathic system of medicine is augmented with adequate therapeutics to resist any form of disease. Be it a new strain of virus or a rare fungal infection, homoeopathy has been effectively healing ever since its inception. Therefore, this review was conducted as web-based intense literature search form authentic database to elicit the pathogenesis, clinical presentation, and general management of mucormycosis occurring as complication in coronavirus patients. Further, the homoeopathic authentic textbooks were reviewed to find out the indicated homoeopathic medicines in cases of





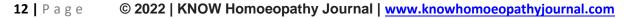
post-covid mucormycosis based on their indications. The purpose of the review is to lay emphasis on the role of homoeopathy in such cases and collect relevant information at one place for the ease of medical scholars.

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**KEYWORDS:** Homoeopathy, Covid associated Mucormycosis, Rhino-Orbito Cerebral Mucormycosis, Black Fungus

## **INTRODUCTION:**

For many in India, the second lethal wave of the new coronavirus disease was heartbreaking and a nightmare. The months of April and May 2021 were critical for the whole country. In the month of May 2021, there were 66,866 fatalities recorded in India due to covid-19, whereas about 70 lakh infections were discovered in the month of April.<sup>[1]</sup> As these figures continued to rise, the whole nation was mourning amidst which, Mucormycosis, a life-threatening disease with a 50% mortality rate (if left untreated)<sup>[2]</sup>, emerged as another concern among the doctors. Mucorales, often known as the black fungus, are common moulds that thrive on decaying organic waste in the environment. Various previous studies from hospitals around the nation have indicated high mould spore counts even in the hospital air, owing mostly to India's hot, humid tropical environment. Overuse of steroids and immunosuppression, particularly in diabetic patients, has been linked to an increase in mucormycosis co infection in hospitalized corona positive







Bi-Annual, Indexed, Double Blind, Peer-Reviewed, Research Scholarly Online Journal in Field of Homoeopathy individuals. Mucormycosis is a rare but deadly illness that may exacerbate the symptoms of Covid-19 in moderate or severe instances.<sup>[3]</sup>

Mucormycosis is much less prevalent than candidiasis or aspergillosis, two other common fungal illnesses. During the epidemic, however, its prevalence had been rising. Breathing in mucoromycete spores induces an infection in the lungs or sinuses, which can spread to other parts of the body and potentially cause death in persons who have a weaker immune system. The disease is a rapidly progressing infection with poor prognosis and requires surgical aid. The review was carried out with the aim to recognize the diagnostic features of the disease and accentuate the usefulness of the homoeopathic mode of treatment in such rare, opportunistic fungal infections. With application of the well indicated homoeopathic remedy, not only the disease prognosis can be improved but the overall rehabilitation of the diseased individual can be enhanced.

### **METHODOLOGY:**

A web-based search for post-covid mucormycosis was conducted using reliable databases such as Google Scholar, Science Direct, and PubMed. The pathophysiology, clinical presentation, and general therapy of mucormycosis fungal illness that occurs as a complication in coronavirus patients were comprehensively examined. The homoeopathic authentic literature was further referred to find out the indicated homoeopathic medicines in cases of post-covid mucormycosis

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### **RESULT:**

J. E. Gregory and colleagues discovered the first case of phycomycotic infection in a diabetic patient in 1943. They presented a summary of typical pathology findings in three diabetic ketoacidosis patients. In 1955, Jerome S. Harris recorded the first instance of cerebro-rhino orbital mucormycosis (CROM) in a young child with the characteristic symptomatology of mucormycosis of the central nervous system.<sup>[4]</sup>

Mucormycosis, also known as zygomycosis, phycomycosis, or hyphomycosis, is a fungal infection caused by filamentous fungus belonging to the Mucorales order of the Zygomycetes class. *Rhizopus oryzae* is the most often isolated organism from mucormycosis patients, accounting for over 70% of all cases<sup>[5]</sup>, followed by *Rhizopus microsporus and Mucor circinelloides. Apophysomyces variabilis, Cunninghamella bertholletiae, Lichtheimia corymbifera, Rhizomucor pusillus, and Saksenaea vasiformis are some of the less occuring species. There is also evidence of an inexplicable male gender bias for mucormycosis, with 65 percent of patients being male.<sup>[6,7]</sup>* 





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Diabetes, malnutrition, malignancies (lymphoma and leukemias), renal failure, organ transplant, burns, immunosuppressive medication, cirrhosis, and AIDS are the probable risk factors. Mucormycosis is more common in diabetic ketoacidosis patients and those who are on dialysis. Overuse of corticosteroids, hyperglycemia with HbA1c > 10% <sup>[6]</sup>, inadequate humidifier maintenance during oxygen treatment, and use of unsterilized equipment in treating critical patients in the ICU, oxygen or ventilators are the key etiology factors in post-covid infection.

Inhalation of air spores, which deposit in the paranasal sinuses and lungs, is the main route of infection. Ingestion of contaminated food or abrasion of the skin are two other less common ways. Following nasal infection, it spreads rapidly to surrounding tissues, including the orbit, and sometimes to the brain. Hematogenous diffusion to additional target organs is most likely aided by angioinvasion (Figure1)<sup>[8]</sup>. The main host defensive mechanism against mucormycosis is mononuclear and polymorphonuclear phagocytes. Mucorales are killed by the production of oxidative metabolites and cationic peptides, such as defensins. The multiplication of fungal spores is then inhibited by neutrophils. Corticosteroids and immunosuppressants greatly enhance these effects in coronavirus patients. Neutrophil migration, ingestion, and phagolysosome fusion are all hampered by corticosteroids. Along with the possible implication of steroid-induced hyperglycemia, diabetic covid 19 patients under steroid therapy and other immunosuppressant drugs are vulnerable to the infection with mucormycosis.

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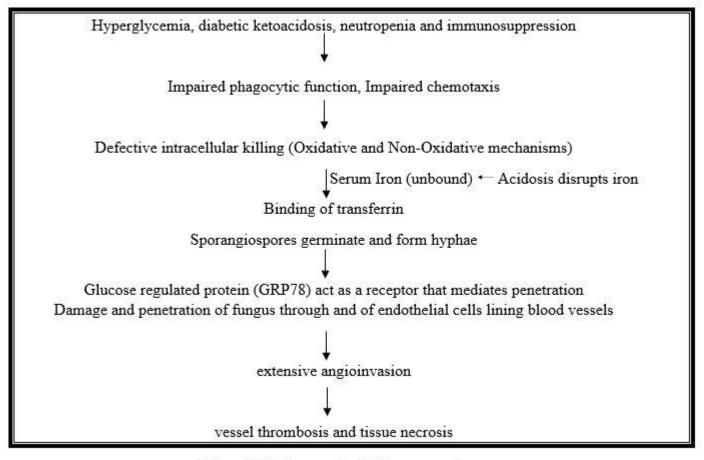


Figure 1: Pathogenesis of Mucormycosis





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Clinical signs of mucormycosis differ depending on the location of infection, however they always show fast development. The rhino-orbito-cerebral (ROCM) type of post-covid co infection with mucormycosis is the most prevalent and severe variant, affecting the sinuses and para-sinuses in debilitated individuals. Infection occurs in three phases throughout the clinical development of ROCM (Table1)<sup>[9, 10]</sup>

STAGES	PATHOLOGICAL FEATURES	SYMPTOMS
Stage 1: Nasal and	Disintegration of nasal septum	Black lesions on nasal
paranasal Stage	• Painless ulcerations with exudate	bridge or upper inside of
(Mostly unnoticed	and necrotic tissue seen intranasally	mouth are the hallmark of
by the patient)		mucormycosis
		• Sinus pain and congestion
		• Nasal discharge or
		blockage
		• Facial pain
		• Hyposmia and Anosmia
Stage 2: Orbital	• Vascular invasion- inducing	• Unilateral periorbital facial

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Stage	arteriole thrombosis affecting the orbital wall, oculomotor nerve, optical nerve with thrombosis of the ophthalmic artery.	<ul><li>pain</li><li>Periorbital edema</li><li>Proptosis</li></ul>
	opinianne arery.	<ul> <li>Ptosis</li> <li>Acute ocular motility changes</li> <li>Acute vision loss.</li> </ul>
Stage 3: Cerebral	Spread to:	Black lesions on palate/
Stage	• Maxillary sinus – involves hard	dental pain
	palate	Hemiparesis
	• Ethmoid sinus - invasion to	Altered Consciousness
	periorbital tissue, the orbital apex,	Focal Seizures
	and the cavernous sinus	• Sagittal sinus thrombosis
	• Sphenoid sinus – invasion of the	• Epidural and Subdural
	carotid artery, and from there	abscess (Uncommon)
	embolize to the frontal and parietal	• Meningitis (Rare)
	lobes	

Table 1: Clinical Progression of Rhino-orbito-cerebral Mucormycosis

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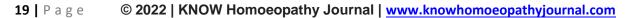




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Pulmonary mucormycosis, cutaneous/skin mucormycosis, gastrointestinal mucormycosis, and disseminated mucormycosis are some of the other kinds of mucormycosis infection. Only a few instances of pulmonary mucormycosis have been reported after a coronavirus infection in which the lungs have been infected with the fungal invasion. Patients may develop bilateral pneumonia, hemoptysis, dyspnea, and cough that advance quickly. Mucormycosis of the skin, presents as a single indurated area of cellulitis that progresses to a necrotic lesion and forms abscesses, and mucormycosis of the gastrointestinal tract, presents as nausea, vomiting, bleeding with necrotic ulcers and bowel infarcts, and have both been observed in post-covid infection<sup>[5]</sup>. The fungus may travel extensively through the bloodstream, causing a wide range of indications and symptoms depending on the organ system affected. Mucormycosis may impact or spread to the kidneys, the inner lining of the heart chambers and heart valves (endocarditis), and the bone in rare cases (osteomyelitis).

A complete patient history, identification of distinctive symptoms, and a thorough clinical assessment are used to make a diagnosis. The symptoms are similar to many illnesses, including various forms of infection, making diagnosis difficult. Diagnosis is mostly challenging because the symptoms are common to many conditions including other types of infection. The diagnostic tools include direct examination: KOH mount and Calcofluor, Fungal culture, Quantitative PCR of blood, MALDI-TOF mass spectrometry, Computerized tomography (CT) scan of lungs,







Bi-Annual, Indexed, Double Blind, Peer-Reviewed, Research Scholarly Online Journal in Field of Homoeopathy sinuses, facial structures and MRI<sup>[11]</sup> are among the diagnostic techniques. Post covid-19 coinfection with mucormycosis can be prevented by taking suitable measures. These include: -

1. Serious patients, particularly those at high risk, should not be kept in dusty regions since the fungus flourishes in dust and building materials (diabetic, immunosuppressed cases)

2. The patient must wear a decent mask and take the necessary measures, such as keeping his or her hands clean.

3. Blood sugar levels must be closely monitored. The fungus thrives on high sugar levels.

4. The patient should get plenty of rest and drink plenty of water.<sup>[12]</sup>

Conventionally, antifungal drugs are administered intravenously or orally to patients with mucormycosis. Surgical debridement is used to remove sick or dead tissue, as well as damaged skin and subcutaneous tissue.<sup>[6]</sup>

## **HOMOEOPATHIC PERSPECTIVE:**

Clinical researches are required to build a scientific database relevant to homoeopathy in order to fulfill the needs of the contemporary world. It is clear that Post covid-19 mucormycosis is a non-infectious, dangerous, and life-threatening condition. There is no evidence of any study on **20** | P a g e © **2022** | KNOW Homoeopathy Journal | www.knowhomoeopathyjournal.com





**Bi-Annual, Indexed, Double Blind, Peer-Reviewed, Research Scholarly Online Journal in Field of Homoeopathy** mucormycosis in relation to homoeopathy. However, In this article an effort has been made to write down a set of drugs based on their broad indications, following the criteria mentioned by AYUSH regulatory agencies and simultaneously referring homoeopathic literature. The homoeopathic drugs that may be administered using homoeopathic principles in instances with rhino-orbito cerebral mucormycosis are briefly detailed below <sup>[13,14]</sup>.

- ARSENIC ALBUM- It covers all miasmatic influences adequately. The skin on the nose becomes desquamated. The face gets swollen with decomposed skin, and distorted facial bones. Inflammation of the eyes and lids, with severe burning pains, preventing the opening of the eye. One of the main characteristics of the remedy is burning with sharp and drawing pains.
- 2. AURUM METALLICUM- Aurum metallicum causes a dull, tearing pain in the skull bones that quickly progresses to inflammation and necrosis. The main symptoms are dental caries in the nasal bones and bone pain in the nasal bridge with a fetid odor. Inflammation and suppuration in the eyes with protruding eyeballs. The patient may suffer from paralysis of optic nerve with horizontal half vision.
- BISMUTH- Complete indifference with pressure and a sensation of weight in the forehead, temples, and occiput, as well as pressure on the eyes. Sensation of outward digging in the 21 | P a g e © 2022 | KNOW Homoeopathy Journal | www.knowhomoeopathyjournal.com





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forehead, orbits, and root of nose. The complaints are worse in the afternoon, after eating and rest. Motion, touch, and washing are all beneficial. With pressive pains in zygoma, there is pressure on the eyeballs.

- 4. **CINNABARIS** There is heat of the face and swelling, mostly seen around the eyes. There is sensation of uneasy creeping and pressing sensation about nasal bones. Suitably effective in shooting pains felt in the inner canthus of the right eye, with burning and itching. Inflammation of right eye with profuse discharge of mucus from the nose are see in the medicine.
- 5. CARBO ANIMALIS- Ulceration, gangrenes, and decomposition are marked effect of this remedy due to its antiseptic properties. A sense of looseness-of eyeballs in sockets is a feature of the medication. There may be presbyopia with dilation of the pupils. The bones of the nose have a painful sensitivity. Shooting sensations are felt in the cheek bones.
- 6. ECHINACEA ANGUSTIFOLIA- This medicine is used to treat acute infections, blood poisoning symptoms, and septic conditions in general. Neuralgic aches are mainly felt at the back of the right eye. Suitable for acute pains in the right eye and temples, as well as lachrymation and a feeling of warmth in the eyes while closed. When picking causes hemorrhage, there may be bleeding and soreness on the right side of the nostril.

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- 7. **GUN POWDER-** Gunpowder is a combination rather than a chemical substance. Suppuration, mostly septic, is associated with gun powder. The most common indication for this drug is blood poisoning, where it acts as a preventative measure.
- 8. **KALI-IODATUM-** This medicine is mostly used to treat left-sided ailments. Tearing aches are felt behind the left eye when you first wake up in the morning. Edematous cellular tissue surrounding the eyes, with protrusion of the eyeballs. Light sensitivity combined with dim, double, or distorted vision. Heat in the nasal sinuses and acrid discharge from the anterior nares are reported by the patient. The individual has stiffness and distension of the cheeks and submaxillary regions.
- 9. KALI-BICHROMICUM- This medicine has been shown to be effective in treating bone pain and syphilitic ulcers. There is a pressure sensation in the nasal bones that extends to the frontal sinuses, along with discomfort and burning. The orbital bone is swollen and aching. Violent shooting pains with pressure along the left orbital arch and at the root of the nose. A pinching ache in the nasal bridge is relieved by applying forceful pressure. The nasal septum becomes ulcerated.





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- 10. **MERCURIUS BIN-IODATUS-** This medication affects the lymphatic system and cellular tissue. It primarily affects the left side of the body. After sleeping, in the afternoon, and in the evening, the symptoms worsen. It is appropriately indicated in disorders of the nasal bones. The turbinates are enlarged and there is crusty eruption on wings of nose. Inflammation with burning and watering in the eyes which is increased by bright light. Face ache in the left cheek and eye.
- 11. **MERCURIUS PROTOIODATUS-** The patient complains of shooting pains in the forehead, right orbital superior arch, and nose root. The right side of the septum and the right nostril are swollen and painful. The nasal septum, eyeballs, and orbits all have acute aches. Soreness of all the face bones, with dull frontal headache. There is right sided affinity of the medicine and night aggravations.
- 12. **MYRISTICA SEBIFERA-** It is a medicine with outstanding antibacterial capabilities. There is inflammation of skin, cellular tissue, and periosteum in general. The remedy is suited in phlegmonous inflammations, has the power to hasten suppuration and shorten its duration. Dr. William Boericke has mentioned that its use often does away with use of the knife.
- 13. MERCURIUS VIVUS- An inflamed eye with a light sensitivity. Under the eyelids, there are ulcerations and cutting pains. The visual nerve is gradually paralyzed, and there is an aversion to light. Swelling of the bones of the nose, nasal bridge may swell up very large on both sides with 24 | P a g e © 2022 | KNOW Homoeopathy Journal | www.knowhomoeopathyjournal.com





**Bi-Annual, Indexed, Double Blind, Peer-Reviewed, Research Scholarly Online Journal in Field of Homoeopathy** painful sensitiveness to touch. Swelling on the face mostly around the eyes. Swelling on the right side, with heat and toothache.

- 14. **PHOSPHORUS-** Puffy face with tearing pains in facial bones. There is pressure in the eyes, as though from a particle of sand, as well as irritation. The upper eyelids are swollen, and moving them is difficult. Patient perceives a terrible dryness in the nose and fetid odor.
- 15. **SILICEA-**The remedy covers ulcers and fungus hematodes on the cornea. Ulcers with gnawing pain high up in the nose, with great sensitiveness to touch. Acrid, acidic nosebleed with a constant feeling of dryness in the nose. There may be loss of smell. Tearing pains on one side, especially on the right, that stitch out through the eyes and facial bones.
- 16. **THUJA OCCIDENTALIS-** JH Clarke mentions Fungus tumor in the orbit. Thuja masks a sewing ache in the middle of the left eye. The eyelids are swollen and hardened due to inflammation. Tensive ache in the nasal bone. Touch relieves boring and digging pains in the cheek bone. Pain in left cheek bone spreading from teeth to nose, to eyes to temples into head. The painful spots burn like fire and are extremely sensitive to the rays of the sun.





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## **DISCUSSION AND CONCLUSION:**

Homoeopathy is a well-known alternative therapy around the world. As per homoeopathic principles, all diseases occurring in nature are due to disturbances in the vital force of any individual presenting as signs and symptoms. As a result, homoeopathy's holistic and personalized approach may successfully aid humanity in any uncommon illness. The similimum is decided after constructing a totality of the symptoms, including both mental and physical domains of the patient. The strategy in homoeopathy is not only to cure mucormycosis illness but also increase the patient's vitality and eradicate any fundamental/ sustaining causes.

Homoeopathic Materia Medica is enriched with medicines that help to cure any disease occurring in nature. Fungal infections can be treated with homoeopathic medicines and several in vitro effects of homoeopathic drugs preventing growth of various strains of fungus have been carried out in the past. Being a rarely occurring infection, much evidence on the role of homoeopathy in mucormycosis has not been yet established. Though, employing homoeopathic medicine as per indicated symptomatology will relieve the suffering humanity. In such a global crisis where, every individual is affected in some way, use of natural healing art of homoeopathy can help rejuvenate naturally.





### **CONFLICT OF INTEREST:** The author declares no conflict of interest.

### **REFERENCES:**

- Sinha A Explained: Why Covid-19 deaths are spiking as the caseload is going down. The Indian Express [Internet] 2021 May 18 [cited 2021 May 21] Available from: https://indianexpress.com/article/explained/india-coronavirus-numbers-spike-in-deaths-casespeak-7320010/
- Ghosh S. Post COVID infections wrongly addressed as Black Fungus: Experts. The New Indian Express [Internet] 2021 May 17 [cited 2021 May 21] Available from: https://www.newindianexpress.com/cities/delhi/2021/may/17/post-covid-infections-wronglyaddressed-as-black-fungus-experts-2303516.html
- Garg D, Muthu V, Sehgal IS, Ramachandran R, Kaur H, Bhalla A, Puri GD, Chakrabarti A, Agarwal R. Coronavirus Disease (Covid-19) Associated Mucormycosis (CAM): Case Report and Systematic Review of Literature. Mycopathologia [Internet]. 2021 May [cited 2021 Jun 26];186(2):289-298. Available from: https://pubmed.ncbi.nlm.nih.gov/33544266/ doi: 10.1007/s11046-021-00528-2
- 4. Wali U, Balkhair A, Al-Mujaini A. Cerebro-rhino orbital mucormycosis: an update. J Infect Public Health [Internet]. 2012 Apr [cited 2021 Jun 30];5(2):116-26. Available from: https://pubmed.ncbi.nlm.nih.gov/22541257/ doi: 10.1016/j.jiph.2012.01.003.
- Ibrahim AS, Spellberg B, Walsh TJ, Kontoyiannis DP. Pathogenesis of mucormycosis. Clin Infect Dis [Internet]. 2012 Feb [cited 2021 July 1];54 Suppl 1(Suppl 1):S16-22. Available from: https://pubmed.ncbi.nlm.nih.gov/22247441/ doi: 10.1093/cid/cir865
  - 27 | P a g e © 2022 | KNOW Homoeopathy Journal | <u>www.knowhomoeopathyjournal.com</u>





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- Roden MM, Zaoutis TE, Buchanan WL, et al. Epidemiology and outcome of zygomycosis: a review of 929 reported cases. Clin Infect Dis [Internet]. 2005 Sep 1 [cited 2021 July 1];41(5):634-53. Available from: https://pubmed.ncbi.nlm.nih.gov/16080086/ doi: 10.1086/432579
- Hernández JL, Buckley CJ. Mucormycosis. [Updated 2020 Jun 26]. In: StatPearls Treasure Island (FL): StatPearls Publishing [Internet]. 2021 Jan. [cited 2021 July 12]. Available from: https://pubmed.ncbi.nlm.nih.gov/31335084/
- 8. Satish D, Joy D, Ross A, Balasubramanya. Mucormycosis coinfection associated with global COVID-19: a case series from India. Int J Otorhinolaryngol Head Neck Surg [Internet]. 2021 [cited 2021 July 15];7:815-20. Available from: https://www.ijorl.com/index.php/ijorl/article/view/2890 doi: http://dx.doi.org/10.18203/issn.2454-5929.ijohns20211574
- Onerci M, Gürsel B, Hosal S, Gülekon N, Gököz A. Rhinocerebral mucormycosis with extension to the cavernous sinus. A case report. Rhinology [Internet]. 1991 Dec [cited 2021 Jun 20];29(4):321-4. Available from: https://pubmed.ncbi.nlm.nih.gov/1780635/
- Chikley A, Ben-Ami R, Kontoyiannis DP. Mucormycosis of the Central Nervous System. J Fungi (Basel) [Internet]. 2019 Jul 8 [cited 2021 July 21];5(3):59. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6787740/ doi: 10.3390/jof5030059
- Thomas J. Walsh, Maria N. Gamaletsou, Michael R. McGinnis, Randall T. Hayden, Dimitrios P. Kontoyiannis, Early Clinical and Laboratory Diagnosis of Invasive Pulmonary, Extrapulmonary, and Disseminated Mucormycosis (Zygomycosis), Clinical Infectious Diseases [Internet]. 2012 Feb [cited 2021 July 26]; 54 suppl\_1:S55–S60. Available from: https://pubmed.ncbi.nlm.nih.gov/22247446/ doi: 10.1093/cid/cir868
- 12. Mucormycosis\_Management\_COVID19, ICMR [Internet]. 2021 [cited 2021 July 27]. Available from:

https://www.icmr.gov.in/pdf/covid/techdoc/Mucormycosis\_ADVISORY\_FROM\_ICMR\_In\_COVID19\_time.pdf

13. Boger C.M., Boenninghausen's Characteristics Materia Medica & Repertory, With Corrected & Revised Abbreviations & Word Index. New Delhi: B. Jain Publishers (P) Ltd.;2009

28 | P a g e © 2022 | KNOW Homoeopathy Journal | <u>www.knowhomoeopathyjournal.com</u>





14. Clarke J.H., A Dictionary of Practical Materia Medica. New Delhi: B. Jain Publishers (P) Ltd.;2005

