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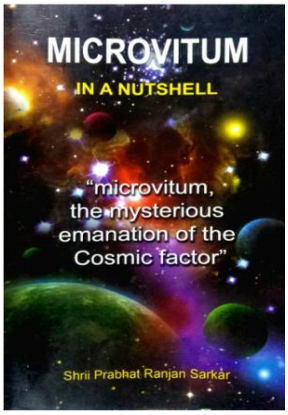
Editorial

The Great Microvitologist – Shrii P.R. Sarkar's prediction

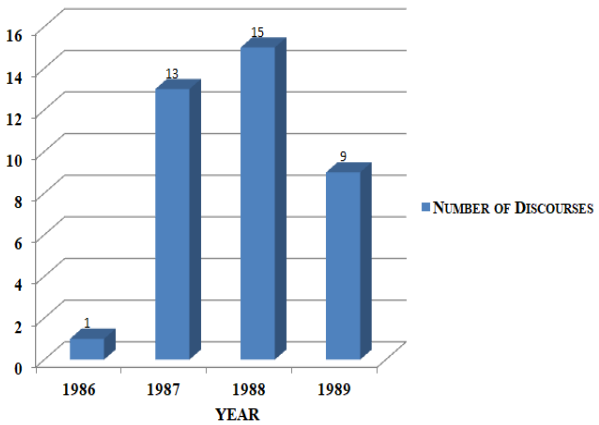


Shrii Prabhat Ranjan Sarkar was a unique personality. He was a literary giant, spiritual master, moralist of the highest order and humanist par excellence of last century. He introduced novel subjects of Neohumanism, Biopsychology, Yoga Psychology, Microvitology etc. He has first time instilled the concept of science of microvita (microvitology) in the human mind. He described in detail about this new science, its implications in individuals and human society and how this will change the various prevailing scientific concepts radically; be it in chemistry, physics, medicine, pharma industries, biotechnology etc. This is in fact the unique contribution of him to the progress of humanity in right direction.

He started his discourse on the subject of microvita way back on 31st December, 1986, addressing as a president of Renaissance Universal (RU) at Kolkata, he talked on "Microvitum, the mysterious emanation of cosmic factor"- the very first discourse on microvita on this planet. To commemorate this historic event, Society for Microvita Research and Integrated Medicine (SMRIM) started celebrating this day as "Microvita Day" from 2010 each year.

The stream of discourses was flowing uninterruptedly since then. There were 13 discourses in 1987, 15 in 1988, 9 in 1989. The last was on August 1989 at Kolkata (Figure 1). During this period (1986-1989), he delivered 38 discourses on microvita and stressed many times that it is possible in future, to face the attacks of negative microvita (inimical/disease causing) on this planet, and for that we should be ready to start research on those microvita without any delay. Even on his first address on microvita on 31st December, 1986 night, he emphasized that 'there should be extensive research work regarding this microvitm or these microvita. Our task is gigantic and we are to start our research work regarding these microvita immediately without any further delay, otherwise many problems in the modern society will not be solved in a nice way'[1].

Figure 1: Number of Discourses by Shrii P.R. Sarkar since 1986



Shrii Sarkar was a great visionary. He foresaw that in future, unless on-guard, the planet will be visited by many new diseases due to the influence of negative microvita form other star systems. Those diseases cannot be diagnosed even by the best physicians. That would happen due to unnatural living style of the people of this planet[2]. What a lucid description of the situation he gave. We are facing exactly the same today.

It is very unfortunate on our part that we heard the discourses, printed them in a book form and kept in cupboard for future consultation. The devastating results are in front of us. The unnatural living pattern, degraded moral values and self-centric thinking are the underlying reasons for invitation of negative microvita catastrophes.

Let us review the sequential order of such events caused by negative microvita (so called viral diseases). The first, unofficial, small but severe outbreak of negative microvita was documented to occur on 4th October, 1989 – just within two months of his last discourse. It was at Ahmedabad Whole Timer training centre of *Ananda Marga*. There were 55 trainees and one trainer. They all developed unusual symptoms starting with swelling in the toes that was gradually ascending to legs, hip, genitals, chest and face. They also complained of loss of appetite, frequency of urination and cutting type of pain in anus during defecation. Their bodies started becoming pale and weak. Vomiting with blood was the death signal. One of the trainees's died and four were in hospital under critical condition on oxygen. Symptoms were unknown to medical world and doctors failed to diagnose it. When this life threatening event was discussed with Shrii P.R. Sarkar; he said with confidence that "A special kind of negative microvita has come from another planet. It wants to destroy the living beings of this Earth. It has no name. Its effects will be greater and more rapid upon those without a moustache or beard (young males). Ladies will not be affected". He directed the treatment based on microvitology/spirituality and all were gradually recovered. It took two to three months for complete recovery. In fact he nipped the danger in the bud and stopped the spread of this negative microvita on this Earth[3,4].

As per the concept of Microvitology, all viral diseases are in fact negative microvita diseases. Shrii Sarkar stressed that 'virus' is a vague term because it doesn't convey the proper meaning (virus-poison) that it is a small living entity. Microvitum clearly denotes that smallest (micro) living (vital) entity. Therefore, the proper term negative microvitum/microvita is used for viral diseases[1].

Viruses (negative microvita) have substantially influenced human health, interactions with ecosphere and societal history and strucutre[5]. In a highly connected world, microbial evolution is boosted and the pathogens exploit human behaviors to their own benefits[6]. These negative microvita (so called viral disease) prefer the matrix of unnatural living style, immoral thinking and behavior and preferential diversion towards the materialism. The present day pandemic is the burning example of this phenomenon.

The most severe pandemic in human history was the Spanish Flu of 1918. It lasted for 2 years in three waves, with 500 million people infected and 50 million deaths. It was the first attack of influenza virus – the negative microvita – visited the earth from other celestial body/ planet after the World War I. The cause as per microvitologist's view was the attraction of negative microvita by the dead and rotten bodies of the soldiers[1].

After Sarkar's prediction, this earth has faced many epidemics of negative microvita. Severe Acute Respiratory Syndrome (SARS) epidemic (2002-2004) caused by SARS-coronavirus (SARS-CoV) started from Guangdong province of China and spread to Vietnam, Hong Kong, Taiwan, Singapore and Canada etc. infected more than 8000 people from 29 different countries and territories[7].

Then came Middle East Respiratory Syndrome (MERS) corona virus (MERS-CoV) outbreak in 2012, lasted mostly to Saudi Arabia and other Middle East countries[8]. SARS-CoV

and MERS-CoV have caused more than 10,000 cumulative cases with mortality rates of 10% and 37% respectively.

Ebola epidemic in West Africa was reported in 2015, Zika epidemic in 2015-2017 and finally SARS coronavirus-2 (SARS-CoV-2) causing corona virus disease 2019 (COVID-19) as a pandemic involving practical all the countries of the globe with very high transmissibility and morbidity and mortality[9]. Over the same time period, more virulent strains of known respiratory pathogens – H5N1 influenza virus, Avian H7N9 influenza virus have emerged[10].

It was very unfortunate on the part of the planet Earth that during last two decades several highly pathogenic human coronaviruses (Negative microvita) have emerged and spread in the form of epidemics and finally the present COVID-19 pandemic. Still more unfortunate thing is that there is no definite treatment of all these negative microvita diseases. For Influenza, decades of research have produced two specific drugs which have not yet been able to demonstrated reduction in mortality or effectiveness despite tests on thousands of patients. In fact, there is no sure shot treatment of all these diseases. The drugs help symptomatically without any effect on the inflicting agent. Negative microvita dies its natural death after completing their life span. The only effective therapy as per Microvitology is to increase the concentration of positive microvita that may devour the negative microvita. Shrii Sarkar has already thrown much light on this concept of treatment[1,2].

Shrii Sarkar's concept of microvita is new to the prevailing scientific thinking; but it explains many unsolved concepts. He was sure that this new science would bring revolutionary changes in many fields of science especially in the field of Pharmaco-chemistry and Biotechnology. Moreover, it was his intense desire that this new and difficult science of microvita would become the subject of intensive and extensive research by spiritualists and scientists alike. Then and then the many problems of the modern society will be solved in a nice way.

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- **S. K. Verma**
- **Vartika Jain**

Letter to The Editor

Psyche and COVID-19

To The Editor,

In context of the recent COVID-19 pandemic, various neurological and psychiatric symptom manifestations, including cognitive, emotional, behavioral and perceptual abnormalities have been reported across the world[1]. Strains of corona virus have caused respiratory ailments in the past during the Severe Acute Respiratory Syndrome (SARS) outbreak in 2002 and the Middle East Respiratory Syndrome (MERS) outbreak in 2012[2].

In December 2019, several cases of atypical pneumonia presented in Wuhan, China and were later identified as acute respiratory syndrome caused by another strain of the Corona virus, labeled as SARS-CoV-2, causing the disease COVID-19. Since then, there has been as growing recognition of the psychiatric implications of this novel entity[3,4]. A widespread social impact of COVID-19, along with the Governmental response in the form of physical distancing measures and quarantine, has lead to increased susceptibility for isolation, loneliness, stress, unemployment and financial difficulties in the general population. Besides, concerns regarding outcome of the illness, other health sequelae and associated stigma have added to the perceived burden[5-7]. This can amount to long-lasting neuropsychiatric consequences in a considerable number of people, as was also observed during previous influenza pandemics[8,9].

We have come across a systematic review and meta-analysis of psychiatric and neuropsychiatric presentations associated with severe corona virus infections (SARS, MERS and SARS-CoV-2)[10]. While the review accepts its multiple limitations, it remains of the pioneering studies on COVID-19 and its mental health perspective, highlighting relevant aspects of mental health care that need prompt recognition and execution. We would like to congratulate the authors on the comprehensive nature of this comparative and co-relational analysis and the resultant implications, and would like to make a few suggestions on the same lines.

In the review, pooled data from more than 2500 studies showed evidence for delirium, specifically confusion, agitation and altered consciousness in intensive care unit patients, especially during the acute stage of the infection. Most patients were found to recover without experiencing any significant psychiatric symptoms. However, the possibility of contracting depression, anxiety, fatigue, post-traumatic stress disorder and other neuropsychiatric syndromes in the longer term was noted. Follow up assessments revealed presence of sleep disorders, flashbacks of traumatic memories, emotional lability, impaired concentration and memory and fatigue in up to 15% of patients after recovery from the infection. The etiology of these symptoms was postulated to be multi-factorial, including direct effects of the viral infection on the brain, its covert effects on the psyche, degree of physiological compromise due to hypoxia, immunological response, medications, social isolation, psychological impact of the novel and potentially fatal pathogen, concerns about transmitting the spread of virus and the associated stigma of being infected.

Based on the findings of this study, we advocate that similar studies be conducted with specific reference to the Indian population, in order to assess the magnitude and nature of psychiatric morbidity in India during this pandemic. Early intervention in the matter is of prime importance, in the form of screening for mental health ailments among the infected individuals and their families, diagnosing the symptoms as discrete sequelae of COVID-19 infection and initiating timely and

appropriate treatment plans. A study on the social consequences and stigma of COVID-19 in India stated that unchecked stigma can cause dire psychosocial consequences including the risk of psychiatric disorders and suicidality[11,12]. Hence, reducing the stigma around this pandemic is of equal importance in developing strategies to build empathy and social justice in order to contain the crisis. In fact, this global crisis can rather be viewed as an opportunity to strengthen the social resilience in us humans.

Experience from previous pandemics hints at anticipation of an exponential rise in psychiatric morbidity in the following years, thus emphasizing the importance of watchful expectancy, monitoring and effective management of psychiatric manifestations associated with corona virus infection. In support of this recommendation, the Government of India has recently released guidelines for the COVID-19 pandemic, adapted to India's unique socio-cultural mental health settings, in collaboration with the World Health Organization (WHO), Inter-Agency Standing Committee (IASC) and the Centre of Disease Control & Prevention (CDC)[13].

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Sureshkumar Mehta
Bhakti Murkey*
Department of Psychiatry, Pacific Medical College and Hospital,
Udaipur – 313001, India, Email: doctor.bhaktii@gmail.com

*Corresponding Author

Human Coronavirus- From Common Cold to COVID-19

S. K. Verma

Department of Medicine, Pacific Medical College & Hospitals, Udaipur, India
Email: skvermaster@gmail.com

Abstract

Coronaviruses are a group of RNA viruses that cause diseases in mammals and birds of varied severity. In cows and pigs, these cause diarrhoea, while in chicken, these cause upper respiratory tract disease. In man, these viruses cause respiratory tract infections that can range from mild symptoms to lethal outcomes. Mild illnesses include some cases of common cold, while more lethal variety are SARS, MERS and Covid-19. The treatment so far is only symptomatic and supportive. There are as yet no vaccines or antiviral drugs available which can prevent or treat human corona virus infections.

Keywords: SARS-CoV-2 infection, Pandemic, MERS-CoV

Introduction

Coronaviruses are enveloped, non-segmented, positive sense RNA viruses belonging to family *Coronaviridae* and the subfamily *Orthocoronavirinae*. The family *Coronaviridae* includes four genera, alpha-, beta-, delta- and gamma microviruses. These viruses are distributed broadly among humans, other mammals and birds[1]. Coronaviruses infect a range of animals including swine, cattle, horses, camels, cats, dogs, rodents, birds and bats[2]. The majority of animal related coronaviruses infect the intestinal tract and are transmitted by fecal-oral route but they can cause respiratory, hepatic and neurological diseases as well in animals[3,4].

Table 1: Human corona viruses

S. No.	Virus name	Category
1.	Human corona virus 229E (HCoV-229E)*	Alpha coronavirus (a-CoV)
2.	Human corona virus NL63 (HCoV-NL63)*	Alpha coronavirus (a-CoV)
3.	Human corona virus OC43 (HCoV-OC43)*	Beta coronavirus (B-CoV)
4.	Human corona virus HK41 (HCoV-HKU1)*	Beta coronavirus (B-CoV)
5.	Middle East Respiratory Syndrome related Corona virus (MERS-CoV)#	Beta coronavirus (B-CoV)
6.	Severe Acute Respiratory Syndrome coronavirus (SARS-CoV)#	Beta coronavirus (B-CoV)
7.	Severe Acute Respiratory Syndrome coronavirus-2 (SARS-CoV-2)#	Beta coronavirus (B-CoV)

*Produce mild symptoms of common cold

Produce symptoms that are potentially serious

Six coronavirus species have been linked with human disease. Four viruses HCoV-229 E, HCoV Oi 43, HCoV NL63 and HCoV HK U1 are commonly prevalent and cause symptoms of common cold in immunocompetent individuals. Two other strains of corona virus SARS-CoV and MERS-CoV are zoonotic in origin and have some fatal outcomes. Epidemics of these two beta coronaviruses have been reported. Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV)[5]

and Middle East respiratory syndrome coronavirus (MERS-CoV)[6] have caused more than 10,000 cumulative cases in the past two decades with mortality rates of 10% for SARS-CoV and 37% for MERS-CoV. Recently in December 2019, a novel strain of coronavirus (2019-nCoV) which was later renamed SARS-CoV-2 was found to be responsible for pneumonic outbreak in Wuhan, China (Table 1). Interestingly, the outbreak of Severe Acute Respiratory Syndrome (SARS) in 2002 and 2003 caused by SARS-CoV was also started in China (Guangdong Province)[5]. Following are the footsteps of human coronavirus disease:

Journey of Human Coronavirus Diseases

1. Coronavirus disease was first discovered in humans in 1930.
2. Human coronavirus 229E (HcoV-229E) was first isolated in 1965.
3. Further, the *coronaviridae* were identified in humans HCoV-NL63, HCoV-OC43, HCoV-HKU1.
4. In November 2002, an outbreak of Severe Acute Respiratory Syndrome (SARS) was discovered (caused by SARS-CoV). The disease originated in Guangdong Province of China and spread to Vietnam, Hong Kong, Taiwan, Singapore, and Canada.
5. In 2003, SARS-CoV, the causative virus of SARS, leading to the 2002-2004 SARS outbreak. More than 8000 people from 29 different countries and territories were infected and at least 774 died.
6. A new coronavirus was identified in 2012 with a SARS like illness, called the Middle East Respiratory Syndrome (MERS)CoV, resulted in a limited number of outbreaks, mostly in Saudi Arabia and other Middle Eastern countries.
7. In December 2019, a novel corona virus (2019 nCoV) was identified in Wuhan, China which was isolated on 7th January, 2020 and named Severe Acute Respiratory Syndrome coronavirus-2 (SARS-CoV-2), the cause of coronavirus disease 2019 (Covid-19) started as pneumonic outbreak in Wuhan, China in December 2019 and flourished to Covid-19 pandemic.

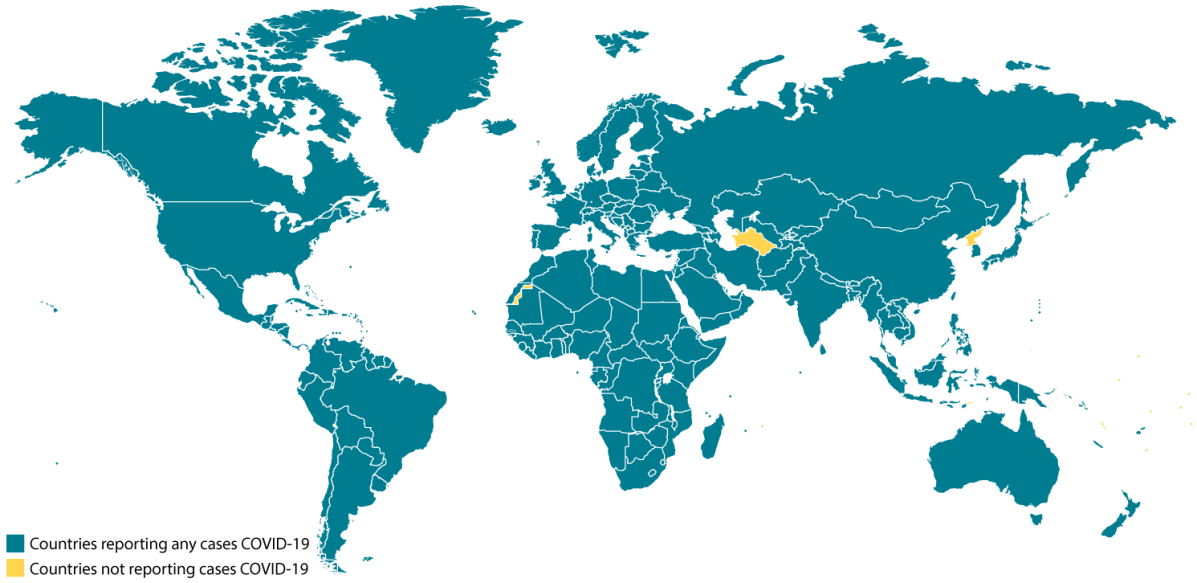
Coronavirus disease-2019 (COVID-19)

In December 2019, Wuhan City, the capital of Hubei province in China, became the centre of an outbreak of pneumonia of unknown cause that was epidemiologically linked to seafood and meat animal wholesale market that also traded in live wild animals in Wuhan. But soon it became clear that efficient person to person transmission was also occurring[7]. The virus has spread to every corner of the world, millions have been diagnosed with SARS-CoV-2 infection and hundreds or thousands of people have died of Covid-19, the disease caused by SARS-CoV-2. This new coronavirus, SARS-CoV-2 has the potential to cause a long-lasting pandemic with high fatality rate[1].

The rapid response team sent by Chinese Centre for Disease Control and Prevention (China CDC) after analysis of bronchoalveolar-lavage samples on December 30th, 2019, reported the genome sequencing after obtaining more than 20,000 viral reads[8]. Most contigs matched to genome from lineage of the genus betacoronavirus showing more than 85% identity with a bat SARS- like CoV (bat-SL-CoV ZC45, MG772933).

The WHO recommended the interim name of the disease as 2019-nCoV acute respiratory disease (2019-nCoV ARD) and 2019 novel coronavirus (2019-nCoV) as the virus[9]. However, the disease was subsequently reclassified as coronavirus disease 2019 (COVID-19) and the virus, a severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2)[10] which is closely related to the earlier

SARS-CoV and genetically clusters within beta coronavirus with sub genus sarbeco-virus[11].



The Wuhan strain has been identified as a new strain of Beta coronavirus from group 2B with approximately 70% genetic similarity to the SARS-CoV[12]. The virus has a 96% similarity to a bat coronavirus, so it is widely suspected to originate from bats[13,14]. The WHO declared the outbreak a Public Health Emergency of International Concern (PHEIC) on 30th January, 2020[15] and pandemic on 11th March 2020[16].

Virology of SARS-CoV-2

Phylogenetic analysis has revealed SARS-CoV-2 is a new member of the Beta coronavirus genus, which includes mainly SARS-CoV, MERS-CoV, bat SARS-related coronaviruses (SARSr-CoV) and other viruses. Intra and inter species transmission of CoVs and genetic recombination events contribute to the emergence of new CoV strains.

SARS-CoV-2 is taxonomically related to the sub genus Sarbeco virus together with SARS-CoV and bat SARS like CoVs. Genomic sequencing have shown that SARS-CoV-2 to be closely related to beta coronavirus detected in bats but distinct from SARS-CoV[17]. Review on notable features of SARS-CoV-2 compared to alpha and beta coronavirus clearly shows that SARS-CoV-2 is not a laboratory construct or purposefully manipulated virus[18]. SARS-CoV and MERS-CoV likely originated in bats both jumping species to infect humans through different intermediate hosts[19].

A coronavirus found in 25 Malayan pangolins, showing 90-100% amino acid identity with SARS-CoV-2 in different genes. It has been suggested that SARS-CoV-2 might have originated from the recombination of a Pangolin-CoV-like virus with the Bat-CoV-RaTG13 like virus. As the RBD of Pangolin-CoV is virtually identical to that of SARS-CoV-2 the virus in Pangolins presents a potential future threat to public health[20]. SARS-CoV-2 replicates poorly in dogs, pigs, chickens, and ducks. However, ferrets and cats are permissive to infection and cats were susceptible to airborne infection[21].

SARS-CoV-2 replicates more efficiently in human pulmonary cells (indicating that SARS-CoV-2 has most likely adapted better to humans) and significantly less in intestinal cells (explain lower diarrhoea frequency compared to SARS) but better in neuronal cells, highlighting the potential for neurological manifestations[22].

SARS-CoV-2 infection induces protective immunity against re-exposure in nonhuman primates (*Rhesus macaques*)[23]. There is a report suggesting that dogs can get infection from SARS-CoV-2 virus from their owners and remain asymptomatic. It still remains unclear whether infected dogs can transmit the virus to other animals or back to humans[24]. Cats maybe a silent intermediate host[25].

Structure

Electron microscopically, the particles are generally spherical with some pleomorphism. The diameter varies from 60 to 140 nm (average 125nm) and the virus particles have quite distinctive spikes, about 9 to 12nm and give the virions the appearance of a solar corona[26].

The viral envelope consists of lipid bilayers in which the membrane (M), envelope (E) and spike (S) structural proteins are anchored. Inside the envelope, there is nucleocapsid, which is formed from multiple copies of the the nucleocapsid (N) protein, which are bound to the positive-sense-single-stranded RNA genome in a continuous beads-on-a-string type conformation. The lipid bilayer envelope, membrane proteins and nucleocapsid protect the virus when it is outside the host cells[1].

Cell entry

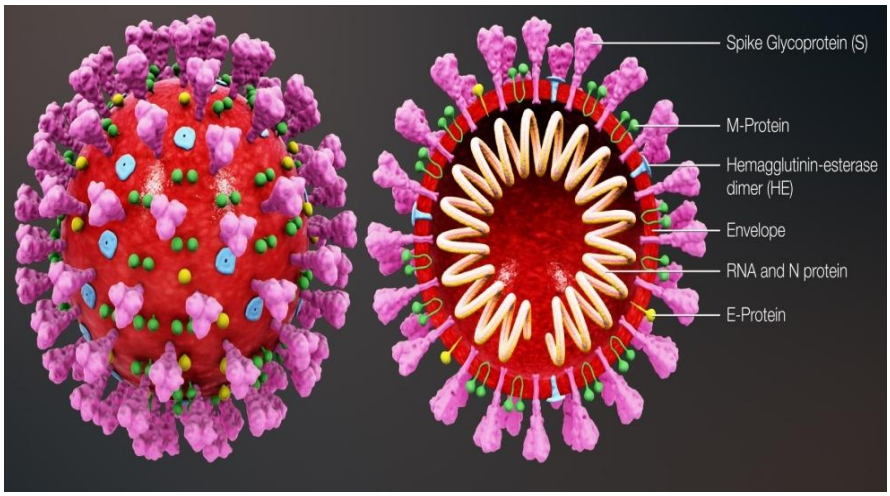
Infection by coronavirus begins when the viral spike protein attaches to its complementary host cell receptor. After attachment, a protease of the host cell cleaves and activates the receptor-attached spike protein. The cleavage and activation allows the virus to enter the host cell by endocytosis or direct fusion of the viral envelope with the host membrane[27]. After entering the host cell, the virus particle is uncoated; its genome enters the cell cytoplasm. The coronavirus RNA genome acts like a messenger RNA and be directly translated by the host cell's ribosomes[28].

Replicase-transcriptase complex

A number of the non structural proteins coalesce to form a multi-protein replicase-transcriptase complex (RTC). The main replicase-transcriptase protein is the RNA-dependent-RNA polymerase (RdRp). The main functions of the RTC are to replicate the viral genome and to transcribe the viral genome. The RTC is also capable of genetic recombination when at least two viral genomes are present in the same infected cell. RNA recombination appears to be a major driving force in determining genetic variability within a coronavirus species, the capability of a coronavirus species to jump from one host to another and infrequently, in determining the emergence of novel coronaviruses[29]. The replicated positive-sense genomic RNA becomes the genome of the progeny viruses which when released from the host cells by exocytosis through secretory vesicles, can infect other host cells[28].

Transmission

Coronaviruses are basically zoonotic. They first develop in animals before being transmitted to humans. For the virus to be transmitted from animals to humans, a person has to come into close contact with an animal that carries the infection. Once the virus develops in a person, then coronavirus can be transmitted from person to person through respiratory droplets.



The 2019 coronavirus has not been definitely linked to specific animals. Researchers believe that the virus may have passed from bats to another animal either snakes or pangolins and then transmitted to humans. This transmission likely occurred in the open meat market in Wuhan, China.

Infected carriers are able to shed viruses into the environment. The interaction of the coronavirus spike protein with its complementary cell receptor is central or key point in determining

the tissue tropism, infectivity and species range of the released virus[19]. Coronaviruses mainly target epithelial cells. They are transmitted from one host to another by an aerosol, fomite, or fecal-oral route depending on the species.

Human coronavirus infects the epithelial cells of the respiratory tract while animal coronavirus generally infects the epithelial cells of digestive tract. SARS coronavirus infects via an aerosol route, the human epithelial cells of the lungs, by binding to the angiotensin converting enzyme 2 (ACE-2) receptors[30].

SARS-CoV-2, the virus of covid-19 is primarily spread between people during close contact (3.3feet WHO, 6 ft-CDC); most often via small droplets produced by coughing, sneezing, talking or singing loudly. An uncovered cough can travel up to 8.2 metres (27 feet)[31]. The droplets usually fall to the ground or onto surfaces rather than traveling through air over long distance. Less commonly, people may become infected by touching a contaminated surface and then touching their face (eyes, nose, mouth)[32]. The risk of catching Covid-19 virus from the feces of an infected person is low. However, there is some evidence that virus may lead to intestinal infection and be present in feces. Two to 10% of cases of confirmed Covid-19 disease have been presented with diarrhoea and two studies detected Covid-19 viral RNA fragments in fecal matter of covid-19 patients[33,34].

The virus is most contagious during the first three days after onset of symptoms, although spread is possible before symptoms appears and from the people who do not show symptoms[7]. Then incubation period is typically around 5 days but may range from 2 to 14 days[35].

Viral shedding

In a retrospective cohort study among patients with COVID-19; the median duration of viral shedding was 20 days in survivors, but SARS-CoV-2 was detectable until death in non-survivors. The shortest observed duration of viral shedding among survivors was eight days whereas the longest was 37 days. Patients who received antiviral treatment (Lopinovir/Ritoravir), there was no shortening of viral shedding duration; the median duration was 22 days (18-24). Prolonged viral shedding provides the rationale for a strategy of isolation of infected patients and optimal antiviral intervention in the future[36].

Surface stability and transmission of the virus

SARS-CoV-2 was highly stable at 4° C (almost no reduction on day 14) but sensitive to heat (70°C: inactivation 5 min., 50°C: 30 min., 37°C: 2 days). It also depends on the surface. No infectious virus could be recovered from print and tissue paper after 3 hours, from treated wood and clothes on day 2, from glass and bank notes on day 4, stainless steel and plastic on day 7. Remarkably a detectable level of infectious virus (<0.1% of the original inoculum) was still present on the outer layer of a surgical mask on day seven[37-38].

Clinical characteristics

Clinical presentation of Covid-19 patients is usually fever, dry cough, dysponea and bilateral ground glass opacities on chest CT scans. These features of 2019-n CoV infection bear some resemblance to SARS-CoV and MERS-CoV infections. However, SARS-CoV-2 patients rarely developed intestinal signs and symptoms whereas about 20 to 25% of patients with SARS-CoV or MERS-CoV infection had diarrhea[36].The Chinese Centre for Disease Control and Prevention published a series of 73,314 case records in which 62% (44,672) were classified as confirmed cases of COVID-19 based on positive viral nucleic acid test result on throat swab samples. Twenty two percent (16186) were classified as suspected cases (diagnosed on symptoms and exposure, no test performed) and 15% (10,567) as clinically diagnosed cases. Majority of patients were between the age group of 30 to 79 years, 1% were aged 9 years or younger, while 1% were between the ages of 10 to 19 years. Three percent were aged 80 years or older. Most cases (81%) were classified as mild, 14% were severe and 5% were critical[39].

There is currently no known vaccine or specific approved antiviral treatment for COVID-19. Primary treatment is symptomatic and supportive. Prevention by using face mask, physical distancing and frequent hand washing are the only means to protect or escape from this infection.

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Microvita and the Coronavirus

Hans-Joachim Rudolph and **Ac. Vimalananda Avadhuta**
Microvita Research e.V. Am Kesselpfuhl 13, 13437 Berlin, Germany
Email: dr.rudolph.berlin@gmail.com

When we talk about the Coronavirus, we usually think of spherical particles with a spiky surface. Additionally, we might remember that it is a large virus, having an envelope which contains a single-stranded RNA genome. But all this is not really correct, because what we call virus is actually a virion: And a virion is definitely not the same as a virus.

The idea that a virus and a virion are distinct was first proposed by Claudiu Bandea in 1983[1]. Bandea presented viruses as organisms, which pass in their ontogenetic cycle through two distinctive phenotypic phases: (a) the vegetative phase and (b) the phase of a viral particle. In the vegetative phase, their component molecules are dispersed within the host cell, showing all major physiological properties of living organisms: metabolism, growth and reproduction. Accordingly, the infected cell should be considered to be the virus, while the virions are only its reproductive forms. Therefore, calling the virion 'a virus' is as wrong as confusing the sperm cell with a human being[2].

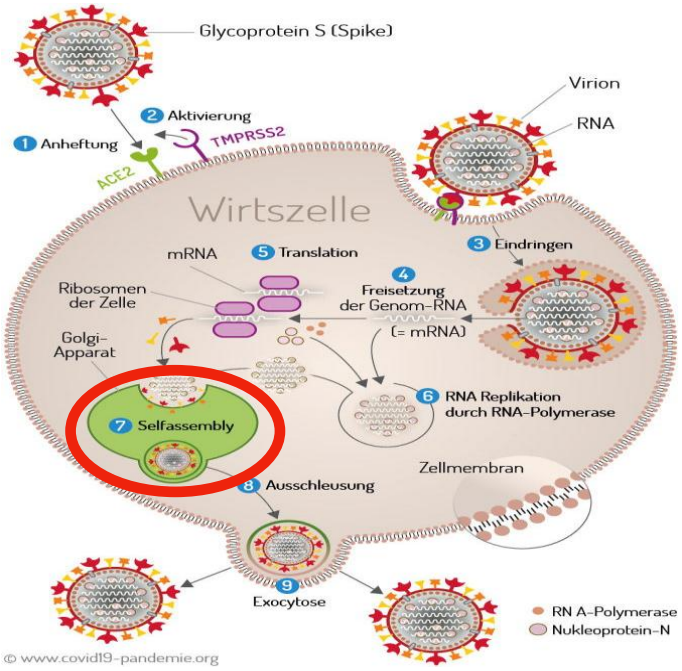

Figure 1: Life cycle of SARS-CoV-2 (© covid19-pandemie.org/CC BY-SA 4.0)
(1 Anheftung = Absorption, 3 Eindringen = Entry, 4 Freisetzung = Uncoating, 8 Ausschleusung = Release)

Consequently, we may conclude that the infected eukaryotic cells, in which viral factories have taken control of the cell machinery, became viruses themselves, with the viral factory being the equivalent of the nucleus. As such, they remain particular types of organisms, because they do not encode own ribosomes and cell membranes, but borrow these from the cells in which they live.

In general, viral replications occur in nine stages, namely 1. absorption, 2. activation, 3. entry, 4. uncoating, 5. synthesis of virus components, 6. transcription, 7. capsid self-assembly, 8. ejection and 9. release. Among these, the capsid self-assembly is quite mysterious. It may occur in the cell's nucleus, in the cytoplasm or at the plasma membrane. In case of SARS-CoV-2, it happens at the membranes of the cytoplasmic Golgi apparatus.

However, the assembly of molecular components into a microscopic structure of higher order is not at all self-evident. It needs more rationalization than what is usually provided. In this article, we offer an explanation that involves microvita, "The mysterious emanations from cosmic factor", where

the idea is based on the following paragraphs from discourse Number 1 in P.R. Sarkar's "*Microvitum in a Nutshell*"[3]:

It is a human characteristic that whatever we know regarding any subject or any object, when we know that it exists but its characteristics or other particulars are not known to us, we say it is "mysterious". So regarding these microvita, we may say they are mysterious. That is why I used the term "microvitum, the mysterious emanation of cosmic factor". They are not of protoplasmic order, and hence the question of their protozoic structure or metazoic structure does not arise. They are something mysterious.

Now, these microvita are not of the same density or the same subtlety. Some of them come within the range of a highly developed microscope; and some of them may not come within the range of a microscope, but by their actional expression or through their actional faculty or as a result of their actional vibrations, they may come within the scope of our perception. They are of subtle order. There may be still more subtle forms of microvita which may not come directly within the scope of our perception but may come within the scope of a special type of perception which is actually the reflection of conception within the range of perception in a limited sphere.

So these microvita may be broadly divided into three categories -- first, those coming within the scope of a microscope; secondly, those not coming within the scope of perception but coming within the scope of perception as a result of their expression, as a result of their actional vibration; and thirdly, those not coming within the scope of common perception but coming within the scope of a special type of perception which is actually the reflection of conception within the periphery of perception. Such perception -- that special type of perception -- may be felt or realized by persons having highly developed minds, having spiritually oriented minds.

Regarding these microvita of crude order which may come within the scope of a microscope, people give them the name "virus". They say, "This disease is of virus origin." But virus is a vague term. The better term will be microvitum, and not virus.

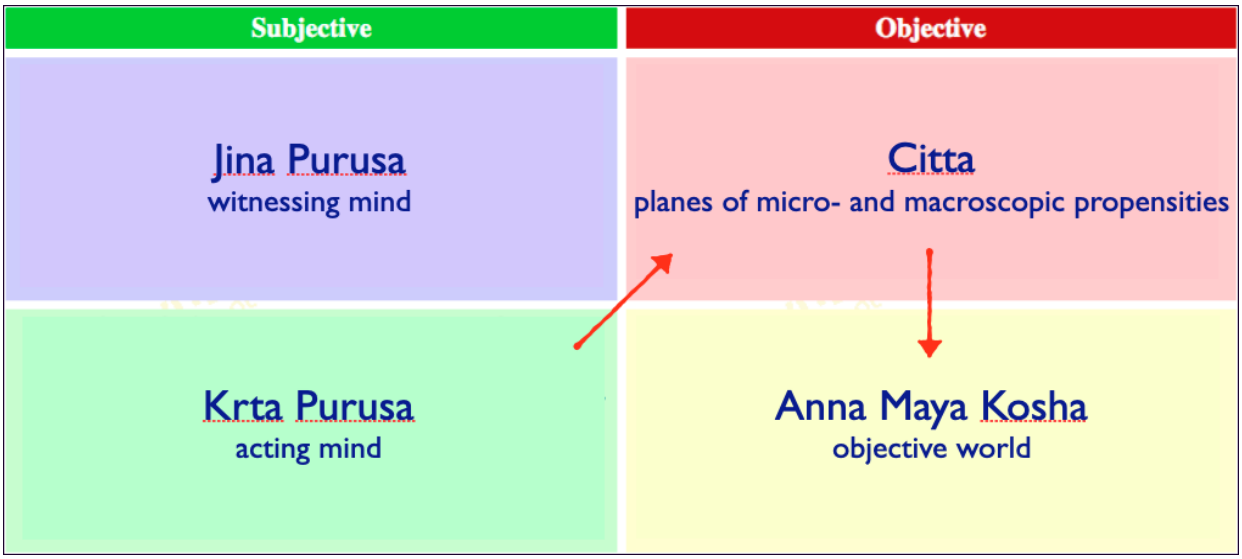

Figure 2: Modified Four Chamber Model[5], derived from P.R. Sarkar's Microvita and Cosmology[4]

As discussed earlier, microvita can be understood as the operators, mediating a parallelism between different planes of existence. But unlike those discussed in my previous publication[6], virus-related microvita are supposed to mediate a parallelism between (A) objective and (B) objective,

between propensities and our objective world. In other words, while they may or may not influence micro- or macrocosmic propensities, they are ultimately bound to affect the biological process of capsid self-assembly.

In particular, we can say that such microvita are able to form synchronised clusters, so that their interaction with the component molecules allows for a morphogenetic field, in which the components arrange themselves to become viral capsids. By definition, such microvita are negative, as their function is clearly pro-matter, and not pro-psychic.

And on the other hand, it can be concluded that *positive* microvita mitigate the morphogenetic field of viral self-assembly, *i.e.* the viral morphogenesis, which is the decisive step in virus replication.

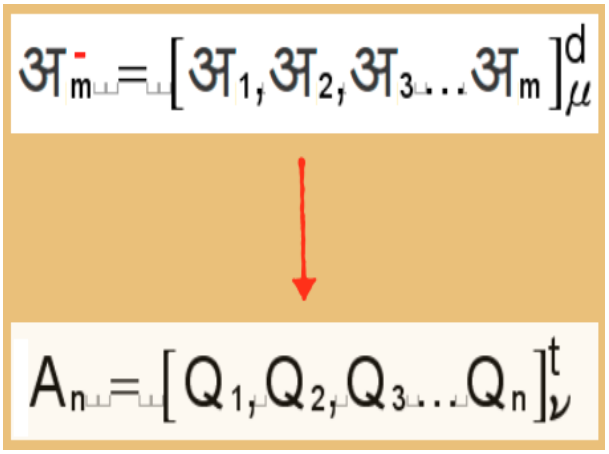

Figure 3: A set of negative microvita influencing an assembly of component molecules[7]

Now, if the decisive step in virus replication is orchestrated by microvita, we should comply with P.R. Sarkar's statement that for the designation of the origin of viral diseases, "the better term will be microvitum, and not virus".

There is, however, a second factor: Just like biochemical reactions are controlled by enzymes, morphogenetic fields are controlled by microvita. But enzymes cannot work without substrates. Likewise, appropriate macrocosmic propensities must be available, so that microvita can arrange for the assembly of SARS-CoV-2 capsids.

In this respect, the general living conditions in megacities, and the accumulation of rotten meat in urban factories, markets and kitchens in particular, might provide the circumstances, which attract these propensities - an assumption that is supported by numerous outbreaks in the proximity of such places[8].

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Short communication

Need of Codified status for Non-codified Ethnomedicinal Practices – Collectively Combating COVID-19

Vartika Jain

Department of Botany, Govt. Meera Girls' College, Udaipur, Rajasthan, India
Email: vartikabotany@gmail.com

Abstract

Ethnomedicine; popularly known as Folk medicine is a time-tested traditional system of medicine. Leads from Ethnomedicinal practices have led to development of some important plant-based drugs against certain diseases and recently, it is being screened to find out some possible treatment against COVID-19. Due to its status as a non-codified system of medicine in India, its full potential could not be utilized as well as the folk healers are not getting respective benefits. It is high time to realize the importance of Ethnomedicine and change its status.

Keywords: Folk medicine, Ayurveda, Phyto-pharmaceutical, AYUSH

In India, traditional medicine and practices have been classified into (a) Traditional systematic codified medicine; the knowledge which is available in pharmacopoeias, or ancient scriptures like Ayurveda, Yoga & Naturopathy, Siddha, Unani, Sowa-Rigpa and (b) Non-codified system of traditional medicine which is known by various names such as Folk medicine, Ethnomedicine, Indigenous Medicine etc. Ethnomedicinal knowledge is mainly transmitted by oral means among generations and mostly acquired by own observation and/or trial-and-error methods[1]. In fact, origin of Ethnomedicine could be traced since the origin of man on earth which led to the beginning of man and plant/animal/mineral relationships[2].

Ethnomedicine has contributed much in development of many modern medicine drugs for example, Reserpine from *Rauvolfia serpentina*, Artemisinin from *Artemsia annua*, Digoxin & Digitoxin from *Digitalis purpurea*, Paeoniflorin from *Paeonia lactiflora*[3,4]. Till now, modern medicine is able to provide only symptomatic treatment of COVID-19. Most of the conventional antiviral drugs such as lopinavir, ritonavir, chloroquine, and hydroxychloroquine have not proved as effective as expected and therefore, scientists have again turned their eyes towards traditional medicine to find out the solution to combat with novel Corona Virus (SARS-CoV-2). Chinese officials announced use of Chinese herbal preparations namely, Lianhuaqingwen capsules and Jinhuaqinggan granules for mild conditions, and Xuebijing (injectable) for severe conditions of COVID-19 on 14th April, 2020[5].

Use of the available natural resources for treatment of various ailments and diseases have sown the seeds of Ayurveda which has later included in the codified system of medicine

as having proper written texts, practice guidelines and affiliations by National agency that is AYUSH in India[6]. During this pandemic time, approval for clinical trials of Ayurvedic medicine for treatment of COVID-19 has been granted as it is a codified system of medicine.

Several plant species such as *Withania somnifera, Cissampelos pareira, Tinospora cordifolia, Curcuma longa, Andrographis paniculata, Piper longum* from Traditional Indian medicine are being evaluated for their potential role against COVID-19 all over the World[7]. It is important to mention that recently, WHO experts have endorsed a protocol for phase III clinical trials of herbal medicine for COVID-19 as well as a charter and terms of reference for the establishment of a data and safety monitoring board for herbal medicine clinical trials. This is definitely going to benefit the entire humanity and paved the way for easier and fast track development of drugs from plant based Ethnomedicine[8].

However, in India, Ethnomedicine is still lacking the status of codified medicinal system. Due to this, folk healers (*Vaidyus*) are not receiving appropriate honor, benefits and freedom to practice and heal the communities and it also pose some hurdles for doing intensive research on data based on Ethnomedicinal inputs. Questions regarding its safety and efficacy are well proven because Ethnomedicinal practitioners have been healing the communities since generations. If codified status is attained then it will strengthen this very important primary healthcare system in our country. This will not only help in fast development of novel phyto-pharmaceutical drugs against the recent pandemic but also help in collectively combating with upcoming future epidemics and/or pandemics along with use of other traditional medicine approaches.

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Secretarial Desk

SMRIM - ACTIVITIES

Plantation drive for Green Udaipur

Under the leadership of Shrii I. S. Rathore, an active member of Society for Microvita Research and Integrated Medicine (SMRIM), a plantation drive was organized this year to make the Udaipur city green. Shrii Rathore and the other active citizens of Udaipur, Indra Raj Mandowara, Mohabbat Singh Rathore, Rajesh Baghel, Sher Singh Rathod, Yuvraj, Jitendra, Ajay Pal Singh, Bhavani Singh Rao, Ajay Acharya, Karan Singh, Yogesh Sharma have planted 50 different types of plant species like *Semal, Jamun, Imli, Peepal, Gular, Barh, Kadamb, Sahjan, Neem, Shisham, Harsingar, Karanj, Giloy, Badam* and *Amla* at various places in Chitrakoot nagar such as RTO office, Outside Maharana Pratap Khelgaon, ESI hospital, Patrakar colony, in front of Bhairavgarh resorts, hills of Chitrakoot nagar and Ubeshwar Mahadev temple. Besides these, plantation was also done at Kanore. It is dedication of Shrii Rathore who is continuing Semal Conservation Mission of SMRIM through plantation and Iron-pole Holika dahan and contributing to make this Earth clean and green.

- Dr. Vartika Jain, Secretary, SMRIM

Bulletin on Microvita Research and Integrated Medicine started in March, 2009 is an official peer reviewed Journal of Society for Microvita Research and Integrated Medicine (SMRIM), Udaipur, Rajasthan. It publishes three issues in a year having original research, reviews, short notes, case studies, Letter to editor in the field of microvita and integrated medicine in both hard and soft copies. Book reviews are published after approval by Editor. The Journal does not levy any Article Processing Charges or Article Submission Charges. Previous issues are available online at : www.microvitamedresearch.com

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