School midday meal depends on the quality and supply of high-quality protein vegetables-cowpea, which is not only an important nutritional food in the student’s diet but also it has health beneficial phytochemicals-properties including anti-diabetic, anti-cancer, anti-hyperlipidemia, anti-inflammatory and anti-hypertensive properties. But plant diseases caused by pathogens, significantly reduce food production. The pesticides are the most effective means of control, but they are expensive and not environment friendly. To move forward, it will require new and more efficient solutions, technologies, products and it has to fulfil its food and nutrition requirement. Our best endeavor is to focus on the cowpea plants. In a well-protected garden of Kanchannagar D.N. Das High school, naturally-infested with root-knot diseases caused by root-knot-nematode-pathogens, cowpea was intercropped with okra to determine the effects on nematode populations. After harvesting, of the two plant species, cowpea received maximum infection which suggest that root-knot disease easily and effectively controlled by the use of cowpea plants as “Eco-friendly-Catch or -Trap or -Cover-Vegetable-Crop” for root-knot intercropped with okra plants in the naturally root-knot diseases-infested field, protecting other crops from invading larvae and increase soil fertility. The farmers would be benefited double; by controlling root-knot diseases, and by buying and selling the cowpea-okra fruits. And highly-trace-tolerance-cowpea legumes may be used, in vaccine formulations or treatments, as one of the most powerful potential-biomedicine, improving natural immunity against COVID-19, enriching science and technology communication applications food security economy. It is the most; cost-effective, easily-available, safe-edible and prepare able as well as and safe alternative to live replicating COVID-19 Social-Vaccines which restarts, a window of hope and opportunity, for future scientists-researchers to explore their research on Diagnosis and Therapies in Complementary Medicine, Integrative Medicine, and Traditional Medicine, transforming nations to green their recovery the 21st-century economy in the ways forming clean, green, healthy, safe and more resilient.

Keywords
Biomedicine-Social-Vaccine; Covid-19; Immunity; Intercropped-Cowpea-Okra; Midday-Meal; Root-Knot-Diseases; Science-and-Technology-Communication-Applications-Food Security-Economy

Introduction
School midday meal depends on, the quality and the supply of high-quality nutritious protein-based vegetables healthy-diet, which comes from Cowpea, and it is not only an important nutritional food in the student’s diet but
also it has highly impressive health benefits for preventing malnutrition as well as different infections [1]. But the regular supply of cowpea from the kitchen garden is hampered by pathogen attack and climate change. Our best endeavor is to focus on the cowpea plant improved midday meal and protects Climate, Health, and Development by controlling root-knot diseases which are sometimes devastating to all kinds of natural and artificial vegetation [2,3]. However, the susceptibility of different hosts to these nematodes varies considerably [4-6]. The root-knot disease of mulberry caused by *Meloidogyne incognita* (Kofoid and white, Chitwood, 1949), causes the epidemic of India [7-8]. The disease reduces plant growth, leaf-and fruit- yield, leaf-and fruit-protein content significantly [9-12]. Synthetic- and chemical- pesticides are the most effective means of control, but they are expensive and not environmentally friendly, and these are serious issues that directly cause crises of financial losses, food productions, and climatic changes and global economy [13-14] in the world agricultural scenario [15]. To provide food for sustainable development, agricultural water management, and designing a suitable cropping pattern for farmers [15-24]. A number of plant bio agents- or -nematicides as crude and pure compound, though effective and easily biodegradable, but they are not easily available in large quantities from natural sources and isolation of only a small quantity of an effective metabolites requires huge quantities of plant materials [7,15,25] with rapid depletion of natural resources, the problem of biodiversity conservation in the world and not cost-effective [7,26]. Bio-nematicides (animal origin like nematode extract, gall protein) reduce nematodes infestation in different plants and root callous by using their defense-response. But it remains a problem for field application and not cost-effective [25-30]. Homeopathy may solve all the above-mentioned problems [3,11-13,31-35]. But it also has some costs. Only, intercropping would help in identifying the susceptible plants for possible use as catch crop [6,10,34] and it is primarily observed that cowpea (*Vigna unguiculata* L.) cv.5269 is more susceptible than the lady's finger [6,10,34]. On the other hand, it is also reported that biomedicines or phytomedicines may not only stand as a suitable- and useful- alternative to conventional but hazardous methods of chemical control against different plant-pathogens, but also increase the immunity of human beings against different infectious diseases caused by pathogens [7,25-28,36-38] and the Cowpea legume consumption, has a high-quality plant diet for overcome various medical complications, high efficacy, and presence of effective bioactive phytoconstituents by inducing their natural immunity [39].

The main aims and objectives, are to find out the most suitable solution, a field trial, was planned in order to the use of cowpea (*Vigna unguiculata* L.) cv.5269 as a “Cover Vegetables Crop” intercropped with okra (*Abelmoschus esculentus* L. Moench) Cv. Ankur-40, for controlling root-knot disease caused by *Meloidogyne incognita* (Kofoid and white, Chitwood, 1949), in a naturally infected field with root-knot nematodes.

At present, the epidemic COVID-19 disease caused by coronavirus-pathogens, has no targeted therapeutics, and effective treatment options, remain very limited. So, the effect of the virus is likely to be seen long after medical science offers a cure for COVID-19 [39-47]. Now it is planned to publish as suggestions for current outcomes and therapies on COVID-19 outbreak that helps the readers as well as a scientific community to take measures or treatment opportunities or discover preventive measures, by use of cowpea as biomedicines, based healthy diet and greater prevention against Sars-Cov-2, by boosting our immune system which may significantly solve or help or advance the current problem of the COVID-19 infections, and clinical practice and acts as an indispensable source to access the pharmacological developments globally.

### Materials and Methods

#### Location of the field trial

The field experiment was carried out at the well-protected garden of Kanchannagar D.N. Das High School (HS), Government of West Bengal, where the temperature was 28 ± 5°C, relative humidity was 75 ±5% and soil pH 5.8, measuring 0.02h land, infested with root-knot disease naturally [7,9]. Burdwan is extending from 22°56’ to 23°53’ North latitude and from 86°48’ to 88°25’ East longitudes. The experimental field has sandy alluvial soil, well-drained and slightly acidic in nature. And the average rainfall was 150 millimeters. The experiment was conducted from 2012 to 2019 by the secondary- and higher secondary- students of Kanchannagar D.N. Das High School (HS), Purga Bardhaman, Government of West Bengal. These experimental fields were randomized in the infested field by using a completely randomized block design. All the data were counted for statistical analysis by t-test.

#### Preparation of the field

Soil was interchanged to keep the nematode population as uniform as possible with mixing manure (2:1 vol/vol). The nematode population varied from 2373-2439 per 200g of soil. Soil samples were taken at random for estimation of the nematode population [9,48,49]. This experimental field was randomized in the infested field by using a completely randomized block design. All the data were counted for statistical analysis by t-test.
Plantation

Aseptically germinated seeds of cowpea (Vigna ungyculata L.) cv. 5269 and okra (Abelmoschus esculentus L. Cv. Ankur- 40) were planted alternately with a gap of 25 cm. Since okra was a slow-growing plant, it was planted 15 days earlier than the cowpea plant [10,14,34]. All the data were counted for statistical analysis by t-test.

Harvesting

Sixty-five days after plantation of cowpea, all the plants were uprooted and the following parameters of growth and nematode infection were recorded: length of shoot and root, fresh weight of shoot and root, root gall number, nematode population per 2g of root and 200 g soil and root protein content. Three samples of root from each species of plants were taken at random and the total protein fraction in each sample was estimated [48-52]. All the data were counted for statistical analysis by t-test.

Processing methods

Different processing methods of cowpea legumes (boiling, sprouting, steaming, frying, soaking, de-hulling, and grinding) are often combined with vegetables to produce different meals [53]. However, there is information available on the quality and dietary characteristics of fresh cowpea, which are occasionally used in folk diets in some southern European countries [54]. Cooking and sprouting of legumes greatly alters the properties and bioavailability of some nutrients [55,56]. Sprouting, the practice of germinating cowpea seeds is one of the most adopted methods for legume processing. Several metabolic enzymes, such as proteinases, are activated during this process. This leads to the release of amino acids and peptides to synthesize new proteins [56].

Science and technology communication applications food security economy

The activity of students, researchers, regulators, teachers, staff, community, photographers, visitors, different scientist, academicians, clinicians, administrators, institutions, farmers, NGO, and media personnel, -campaign or -aware or -make the news or -publication regarding the importance of “Intercropped Cowpea Maybe Use as Biomedicine Improved Immunity against COVID-19: Enriching Science and Technology Communication Applications Food Security Economy and Nutritious foods-, Healthcare-, Defense response- and Immunity- as well as Biodiversity Conservation- Issues” in different audio-visual media (TV channels), social media, web pages, newspapers, and journals, are recorded. It is a platform to promote and discuss different new issues and developments by publishing case reports in all aspects of Clinical Medicine for all over the globe [3,6-14,25-32,34-38,57-58].

Results

Table 1: It shows the use of cowpea as a trap crop for M. incognita intercropped with okra plants in a garden. a, b - Significant difference in a column by ‘t’ test (P<0.01) in the same column. + - Mean of 10 plants replicated thrice. * - Plants naturally infected with 2373-2439 per 200g. M. incognita juveniles J2 per 200g of soil and harvested 65 days’ after cowpea plantation.

| PLOTS            | LENGTH (cm)+ | FRESH WEIGHT(g) + | NEMATODE POPULATION + | ROOT PROTEIN CONTENT (%)+ |
|------------------|--------------|------------------|-----------------------|--------------------------|
|                  | SHOOT ROOT   | SHOOT ROOT       | ROOT GALLS/ PLANT *+  | ROOT (2g) SOIL (200g)    |
| Monoculture Cowpea | 58.30a ± 1.14 | 22.80a ± 0.02   | 188.70a ± 2.21        | 39.00b ± 0.10            |
| Okra             | 46.50b ± 1.31 | 15.91b ± 0.23   | 78.09b ± 1.13         | 14.30b ± 0.06            |
|                  | 55.00a ± 2.85 | 55.00a ± 2.85   | 1370.00a ± 18.00      | 55.00a ± 2.85            |
|                  | 8.08a ± 2.21  | 90.00b ± 12.64  | 39.00b ± 0.10         | 55.00a ± 2.85            |
|                  | 4.65b ± 0.13  | 12.64 ± 0.13    | 14.30b ± 0.06         | 55.00a ± 2.85            |
|                  | 2.21 ± 0.23   | 78.09b ± 1.13   | 188.70a ± 2.21        | 90.00b ± 12.64           |
|                  | 2.81 ± 0.02   | 22.80a ± 0.02   | 55.00a ± 2.85         | 12.64 ± 0.13             |
|                  | 12.64 ± 0.13  | 14.30b ± 0.06   | 4.65b ± 0.13          | 188.70a ± 2.21           |

Table 1: Use of cowpea as cover vegetable crop for root-knot diseases intercropped with okra plants in a garden.

a, b - Significant difference in a column by ‘t’ test (P<0.01) in the same column.
+ - Mean of 10 plants replicated thrice.
* - Plants naturally infected with 2373-2439 per 200g. M. incognita juveniles J2 per 200g of soil and harvested 65 days’ after cowpea plantation.
In future suggestions in research

The results fulfill the goal of a research suggestions as proposal because the consumption of intercropped cowpea with okra, use as biomedicines, need to justify future research and to present the practical ways in which the proposed study should be conducted by the future researcher for conducting the research consistent with requirements of the professional or academic field and a statement on anticipated outcomes and or benefits derived from the study’s completion.

In science and technology communication applications economy

The students, researchers, teachers, staff, community, photographers, visitors, different scientist, administrators, institutions, farmers, NGOs, and media personnel campaign, aware, discuss, arrange workshops and seminars, make news and publish as abstract regarding the importance of “Intercropped Cowpea Maybe Use as Biomedicine Improved Immunity against COVID-19: Enriching Science and Technology Communication Applications Food Security Economy-, and Healthcare-, Defense Response-, Vaccinations- and Immunity- as well as Biodiversity Conservation- Issues” in different national- and local- audiovisual media (TV channels), different social media, web pages, newspapers and different -national and -International Journals as well as Congress Proceedings also.

Discussion

It is in favor of the fact that preventive measures start from the cowpea based healthy diet and greater prevention against Sars-Cov-2. So many subheadings-scheme that highlights the various point to deepen and link them to a common thread: “Healthy Cowpea Diet Greater Prevention against COVID-19”, that to make the reader easily understand the link between the various considerations as follows:

A Scheme for Common Thread- Healthy Diet of Cowpea as Biomedicine Greater Prevention against COVID-19:

| Subject | Key Points | References |
|---------|------------|------------|
| I. Advantages of Cowpea as Biomedicine: | ● On Susceptibility as a Cover Vegetables: [6,10,14,34] |           |
|         | ● On Defense Resistance and Benefit: [3,27,28,59-65] |           |
|         | ● On High Tolerance to Environmental Stresses: [65] |           |
|         | ● On Climate Change and Food Security in Agriculture: [3,27,28,44,59-62] |           |
|         | ● On Cowpea Based Healthy-Diet for Greater Prevention against Epidemiological Diseases: [39-42,66-68] |           |
|         | ● On Food Consumption, Digestion and Availability: [1,68] |           |
|         | ● On Genetic improvement: [69,70] |           |
|         | ● On Decreasing, the Chemicals’ Usage: [71] |           |
| II. Development of Suggestions- Cowpea as Biomedicine against COVID-19: | ● On Genetic Similarity: [72-76] |           |
|         | ● On Genetic and Immune Resistance Mechanisms: [77-79] |           |
|         | ● On Traditional Medicine: [40, 46,80-81] |           |
|         | ● On Human Immunomics Initiative: [43-44,82-84] |           |
|         | ● On Nature of Binding: [42,85-87] |           |
|         | ● On Antigenic Epitopes: [41,88-89] |           |
|         | ● On Viral Nanobiotechnology: [90] |           |
| III. Most Applied Suggestions-Cowpea as Biomedicine against COVID-19: | ● First Suggestion: [41,82,88,90-94] |           |
|         | ● Second Suggestion: [1, 82,92-96] |           |
Advantages of Cowpea as Biomedicine

On susceptibility as a cover vegetables

It is evident from the observation that cowpea was more susceptible to *M. incognita* than okra plants. This does not mean that okra is resistant to root-knot nematodes. In contrary, okra is a very good host of these nematodes pathogens. However, root-knot nematodes preferred to feed on cowpea rather than okra when it had a choice, forming “Cover Vegetables Crops”. It is due to the relative size as well as biomass of the two root systems that are responsible for the difference in susceptibility between the two plant species. Here the cowpea root system colonizes and occupies the large area, it is likely that the plant-parasitic nematodes will preferably be found in its roots [6,10,14,34].

On defence resistance and benefit

And the positive effects of the growth of both okra and cowpea plans may be responsible for defense resistance against other plant pathogens [3,27,28,59-62]. It has been reported that cowpea root-nodules increase soil nitrogen by biological nitrogen fixation and the amounts of N transferred to associated non-leguminous crops-okra determines the extent of benefits. The farmers would be benefited double; by controlling root-knot diseases, and by buying and selling the cowpea-okra fruits [63-65].

On high tolerance to environmental stresses

Cowpea has high relative productivity, production stability, and high tolerance to environmental stresses like drought. Soil fertility and productivity in Africa, is raised and sustained the soil fertility management practices have to be developed and adopted by the farmers. Cowpea intercropping systems indicated the advantage of these technologies and their function of socio-economic and bio-physical conditions. This review explored the mechanisms and processes associated with soil fertility management, the effect of intensive agriculture on soil degradation, the role of traditional and scientific knowledge, benefits, challenges, and additional cereal-legumes cropping systems. These contributed to understanding the effects of soil fertility management decisions and human-use impacts on long-term ecological composition and function [65].

On climate change and food security in agriculture

Plants growth directly rate by increasing stomata- activity, conserves solar energy in the glucose, and significantly reduces CO2 in the climate. So we can say that both plants might have induced synthesis of many new proteins which increase photosynthesis have stimulated increased photosynthesis rate, stomata- activity, and water retention capacity plants by inducing defence response [3,27,28,44,59-62]. These results may suggest that plant diseases (like nematodes, fungus, virus, bacteria and insects etc) might be effectively controlled by the cowpea plant as a ‘Cover Vegetables’. It is a new and more efficient solution, technologies, products and it has to fulfil its food and nutrition requirement for controlling root-knot disease by using cowpea plants which indirectly influence climate change and resource productive economies enriching quality of midday meal as well as the agricultural sector.

On cowpea based healthy-diet for greater prevention against epidemiological diseases

It is reported that the cowpea legume consumed as a high-quality plant protein source and carbohydrate contents with a relatively low-fat content and a complementary amino acid pattern making cowpea an important nutritional food in the human diet which exerted health beneficial properties, including anti-diabetic, anti-cancer, anti-hyperlipidemic, anti-inflammatory and anti-hypertensive properties. It is being
used traditionally to overcome various medical complications or diseases and it has been used to treat several medical ailments high efficacy and presence of effective bioactive phytoconstituents by inducing their natural immunity in animals [39]. Worldwide consumers and researchers have considered cowpea more important as a result of its exerted health beneficial properties, including anti-diabetic, anti-cancer, anti-hyperlipidemic, anti-inflammatory and anti-hypertensive properties. Among the mechanisms that have been proposed in the prevention of chronic diseases, the most proven are attributed to the presence of compounds such as soluble and insoluble dietary fiber, phytochemicals, and proteins and peptides in cowpea. Conflicting results have produced from the studies on the anti-cancer and anti-inflammatory properties of cowpea and some studies support a protective effect of cowpea on the progression of cancer and inflammation, whereas others did not reveal any. It is also reported the favorable effects of cowpea on diabetes, hyperlipidemia, and hypertension, a long-term epidemiological study investigating the association between cowpea consumption and diabetes, cardiovascular disease, and cancer is also recommended [39-42]. In Swaziland, the improved varieties have high seed weight, which is an essential factor that farmers consider when choosing a variety to adopt. In terms of addressing nutritional security, the crop is suitable for addressing protein-energy malnutrition and formulating blends for baby foods [66]. In addition to protein, the edible leaves and seeds of legumes also contain high levels of dietary-important mineral nutrients, which are needed for human nutrition and health, especially for overcoming trace element deficiency and promoting brain development [67]. Cowpeas are incredibly nutrient-dense, packing plenty of fiber and protein into each serving. They’re also a good source of several important micronutrients, including folate, copper, thiamine, and iron. Black-eyed peas are high in anti-nutrients and may cause digestive issues in some people and soaking-cooking the legumes can minimize side effects. Black-eyed peas are very versatile and can be added to a variety of recipes, including soups, stews, and salads. Cowpea may help in weight loss, improve digestive health, and support good heart health. In addition to the nutrients listed above, black-eyed peas are high in polyphenols, which are compounds that act as antioxidants in the body to prevent cell damage and protect against disease. The soluble fiber found in black-eyed peas and other plants can also act as a prebiotic, stimulating the growth of the beneficial bacteria in your gut to help foster a healthy microbiome. Enjoying black-eyed peas as part of a balanced diet is an excellent way to help keep your heart healthy and strong, as they may help reduce several risk factors for heart disease [1,68].

On food consumption, digestion, and availability

Cowpea also has economic viability, low environmental impact and contributes to the conservation of natural resources and the sustainability of production systems and it is a safe food, easily available in all regions, low priced compared to other sources of protein. Based on the analyses performed, it is possible to infer that cowpea is a strategic culture for the promotion of food security and the health of populations on all continents [68]. Cowpea is not only healthy and delicious food, but also it is highly versatile and easy to enjoy in a variety of recipes. If using dry beans, be sure to soak them in water for at least 6 hours, which helps speed the cooking time and makes them easier to digest. In traditional, the cooked cowpea is mixed with meat, spices, and leafy greens. However, they also make a great addition to soups, stews, and salads. But it is showed that following a low-calorie diet enriched with 1 cup of legumes (170g) per day for 6 weeks significantly reduced waist circumference and triglyceride and blood pressure levels, compared with a control group [1].

On Genetic improvement

The cowpea is aimed at the development of drought-tolerant, phosphorus uses efficient, bacterial blight, and virus-resistant lines through exploiting available genetic resources as well as the deployment of modern breeding tools that will enhance genetic gain when grown by sub-Saharan Africa farmers [69]. The COVID-19 pandemic may delay the rollout of pest-resistant Bt-cowpea in Nigeria’s first Genetically Modified (GM) food crop. The government’s decision to allow the commercial release of Bt-cowpea, which resists the destructive pod borer insect without the use of pesticides, elicited excitement among Nigerian farmers. It is provided by modern biotechnology, a good alternative to addressing the looming food crisis after the pandemic by developing plants with enhanced natural attributes, such as resistance to diseases and pests, adaptation to harsh environmental conditions, reduction and delay of spoilage, and improvements to the nutrient profile. GM crops have been shown to greatly improve agricultural productivity by reducing production cost with the use of less farm inputs. The cultivation of GM crops in Nigeria is high with potential economic growth, arising from, offering increased access to food, good health, and productivity. It will also attract foreign investments and earnings from modern biotechnology sector, leading to wealth creation. It is expressed optimism that Nigeria would get back on track in getting the staple crop into the hand of farmers once the pandemic is fully tackled and things return to normal in the country and Bt- cowpea “would help boost Nigeria’s food chain and ensure we have a food-secured
It is reported in a chapter entitled “Genetic Resistance to Coronavirus Infection- A Review” where researchers have organized their review of genetic resistance to coronaviruses according to those three host resistance mechanisms: genetic control at the level of the, -cellular receptors, -macrophage and -acquired immunity. However, they would like to stress that those ‘levels’ are purely operational boundaries. In reality, a host can be infected with a virus several times during its lifetime, and thus all available innate and immune resistance mechanisms will be called into play at once. Also, they have included a general outline of the methods used to identify host resistance genes in mouse models of infection [77]. SARS-CoV-2 is the etiological agent responsible for the pandemic COVID-19 outbreak and the main protease (Mpro) of SARS-CoV-2 is a key enzyme that plays an important role in helping in viral replication and transcription which is the structure-based design of antiviral drug candidates targeting the SARS-CoV-2 main protease [78]. Once the virus infects the host cell, it takes over the host cell's machinery to produce more viruses. The host cell essentially becomes a virus factory. When the human body is attacked by germs, the immune system kicks into gear to fight off the assault. Germ fighting white blood cells in the body are called up to destroy the intruder. These cells target specific sites on the virus, working to destroy the infection. Also, a healthy person's immune system creates a blueprint of the attacking agent. With this blueprint, the body effectively remembers the germ - enabling a person to fight for reinfection by the same or similar viruses [79].

On decreasing, the chemicals’ usage

The fertilizers-pesticides, plus improvements in the crop input use efficiency could minimize greenhouse gas emissions while protecting the environment. Sustainable agriculture holds promise for humankind and the planet Earth, and it can be successful if all developed and developing nations stand together to seek ‘our common future’ to produce more food while generating less environmental pressure [71].

Development of Suggestions-Cowpea as Biomedicine against COVID-19

On genetic similarity

We’re not completely human, at least when it comes to the genetic material inside our cells. We all may harbor, as many as, one hundred forty-five genes which have jumped from bacteria, other unicellular organisms, and viruses and made themselves at home in the human genome. It is reported-online today in ‘Genome Biology’, that the hundreds of genes that appeared to have been transferred from bacteria, archaea, fungi, other microorganisms, and plants to animals. In the case of humans, they found one hundred forty-five genes that seemed to have jumped from simpler organisms, including 17 that had been reported in the past as possible horizontal gene transfers [72]. The genomics of plant and animal is a vast area of research for the biological issues covered because it continues to deal with the structure and function of genetic material underpinning all organisms [73]. Approximately, ten percent of the human genome is made of bits of virus-DNA. Mostly, this viral DNA is not always harmful. In some cases, researchers have found that actually it has a beneficial impact. When viruses infect us, they can embed small chunks of their genetic material in our DNA [74]. The viral content of human genomes is more variable beyond our imagination. Millions of years ago, into the primordial genetic material of our progenitors, parts of human DNA are of viral origin were inserted and have been inherited by successive generations. Thus, the genomes of modern humans are not thought to vary much. HERV (Human Endogenous Retroviruses) are by far the most common virus-derived sequences in the human genome and mobile DNA shows a mechanism that has introduced more inter-individual variation in HERV content between humans than previously appreciated [75]. Ben L. Calif informs, “The Human Genome Is Full of Viruses and Your body requires viruses, but viruses don’t always require a body” [76].

On genetic and immune resistance mechanisms

It is reported in a chapter entitled “Genetic Resistance to
practice and natural, establishing their efficacy and safety through rigorous clinical trials is critical [40].

**On human immunomics initiative**

Vaccination has four components for successful implementations; knowing the vaccine target, what kind of immune response, how to generate that response, and understanding responses in the people who we want to vaccinate. Human Immunomics Initiative (HII) aims to decode the underlying mechanisms and rules of how the human immune system fights disease with advances in computing and artificial intelligence, genomics, systems biology, and bioinformatics [82]. And should follow the guideline of WHO entitled “Vaccine-preventable diseases and vaccines” [83]. It is reported that long-stay stress in emergencies can be responsible for this condition in a case study of Tako-Tsubo cardiomyopathy disease which shows that, that’s why it’s so important to Reduce Wait Time in the emergency as much as possible [84]. Harmonized clinical trials are aimed to accelerate licensure and distribution by the public-private partnership and platform [43]. Because recently, it is known that without effective control measures, strong outbreaks are likely in more humid climates and summer weather will not substantially limit pandemic growth [44].

**On nature of binding**

SARS-CoV-2, the coronavirus that causes Covid-19, enters human cells by binding of its viral spike protein to the membrane-bound form of them Aminopeptidase Angiotensin-Converting Enzyme 2 (ACE2) [85]. Studies in animals have suggested that Angiotensin-Converting-Enzyme (ACE) inhibitors and Angiotensin-Receptor Blockers (ARBs) may up-regulate ACE2 expression [86], thus increasing the availability of target molecules for SARS-CoV-2. Ultimately, one or more randomized trials will be needed to answer definitively the question of whether ACE inhibitors or ARBs pose harm to patients with Covid-19 [87]. The T-cells-immune warriors help us fight some viruses, but their importance for battling SARS-CoV-2, the virus that causes COVID-19, has been unclear and the two studies disclose infected-people harbor T-cells that target the virus-and may help them recover and, both studies also found some people never infected with SARS-CoV-2 have these cellular defenses, most likely because they were previously infected with other coronaviruses [42].

**On antigenic epitopes**

The Cowpea Mosaic Virus (CPMV), has been evolved as an expression and presentation system to display antigenic epitopes derived from a number of vaccine targets including infectious disease agents and tumors and these CVPs (chimeric virus particles) could constitute a cost-effective and safe alternative to live replicating virus and bacterial vaccines which have now been generated and their immunogenicity examined in a number of animal species [88]. In a chapter reports the ability of African medicinal spices and vegetables to tackle malignant diseases. The likely mode of action of reported extracts and compounds included induction of apoptosis, coupled to cell cycle arrest either in G0/G1 or between G0/G1 and S-phases in cancer cells, disruption of the mitochondrial membrane potential, generation of reactive oxygen species as well as activation of caspases enzymes [41]. It is proved to exert various health favorable effects, including blood cholesterol reduction in animal models by cowpea seed β-lignin, a vicilin-like globulin which showed: (i) differing glycosylation patterns of the two constituent polypeptides, in agreement with amino acid sequence features; (ii) the seed accumulation of a gene product never identified before; (iii) metal binding capacity of the native protein, a property observed only in few other legume seed visions [89].

**On viral nano biotechnology**

It is an emerging and fascinating field, dealing with the use of virus-based nanoparticles as templates and/or building blocks to display novel molecular moieties with specific properties for a wide range of applications in biology, medicine, and materials science. Plant virus-based nanoparticles (VPNs-VNPs and VLPs derived from plant viruses) have been explored for several years either to express subunit vaccines or as epitope presentation systems. In the recent times, these VPNs are attracting the attention of researchers and clinicians due to their several attractive features such as size range (nanometer), relative structural stability, the high degree of symmetry, polyvalency, monodispersity, noninfectious and nonhazardous nature when injected to mammals, low cost of production, and biocompatibility. VNP and VLP can readily be engineered chemically and genetically to carry targeting ligands, therapeutic antibodies, and imaging agents and drugs on their exterior and internal surfaces. This review aims to summarize important plant virus-based nanomaterials (icosahedral and helical shaped) that have been developed for imaging, drug delivery, and therapeutic applications [90].

**Most Applied Suggestions-Cowpea as Biomedicine against COVID-19**

Here, the results and discussion fulfil the goal for the research suggestions because the present study needs to justify future research and to present the practical methods in which the proposed study should be conducted. The plans for conducting research are governed by standards of the results in which
the solutions or problems reside, therefore, the guidelines for research proposals are more exacting and less formal than a general project proposals or suggestions.

**First suggestion**

In biomedicines, the plant virus, Cowpea Mosaic Virus (CPMV), may be used in vaccine formulations to regulate immune function against coronavirus, which has been developed as antigenic epitopes derived from the vaccine targets COVID-19 infectious epidemic disease agents, and the Chimeric Virus Particles (CVPs) could represent a cost-effective and safe alternative to live replicating coronavirus vaccines. And it may be effective by the humoral and cellular immune responses generated by these CVPs following both parenteral and mucosal delivery and highlight the potential of CVPs to elicit protective immunity from COVID-19 infection [41,88]. These plant virus-based nanoparticles are attracting the attention of researchers and clinicians for imaging, drug delivery, and therapeutic applications [90]. Here, vaccination or treatments, is the use of remedies against diseases either earlier in an epidemic or given routinely to prevent diseases. When the latter is used it involves mostly the users just like any conventional vaccination which administers the antigen in an inactive state to gain immunity towards the disease and is given before the onset of disease or disease symptoms in an individual as a prevention rather than cure [91]. It is obligatory that information on ClinicalTrials.gov, a resource provided by the U.S. National Library of Medicine (NLM), to the National Institutes of Health (NIH) or other agencies of the U.S. Federal Government, is provided by study sponsors and investigators, and they are responsible for ensuring that the studies follow all applicable laws and regulations [82,92,93]. It is also studied, the cost-effectiveness of emergency care interventions, in low and middle-income countries like India [94]. But it will not only be -cost-effective, but also easily available and prepare able as well as and safe alternative to live replicating COVID-19 vaccines.

**Second suggestion**

The cowpea legumes (fresh or cooked) may be consumed as biomedicines @ 100g (half cup) twice daily (during taking meal) for at least 6-weeks, against naturally occurring coronavirus infections 45-days before the symptom onset OR illness onset (as a vaccine) OR onset of symptoms (if possible) -associated COVID-19 infections have been reported (treatments) [1,95]. The edible biomedicine-cowpea legumes may also be directly used for “Clinical trial or as a Vaccine” after getting permission from the -WHO, -ClinicalTrials.gov, -U.S. NLM and -NIH [82,92,93,96]. It is the most cost-effective, easily-available, safe-edible and prepare able as well as and safe alternative to live replicating COVID-19 vaccines [94].

**Planned to Publish Suggestions**

For current outcomes and therapies on Coronavirus disease (COVID-19) outbreak that helps the readers as well as a scientific community to take measures or treatment opportunities or discovery of vaccines to avoid new coronavirus. Our main goal is to limit infections. Let us all take this basic information's as proposal and also educate people, help them to fight against this war, the normal life of everyone is on hold due to this escalating coronavirus emergency, which in a way helps all the scientist, readers, authors and editors to take necessary and respective steps to save or avoid this dangerous disease. I request all to support this initiative and help to reach the targeted audience. And it also focuses the future “Trends in Medicine Globally’ which serves as an evidence-based resource covering various experimental disciplines of medicine, innovative case reports in all clinical practices, and acts as an indispensable source to access the pharmacological developments and provide a platform for young/upcoming scientists and future researchers to share/explore their research on Diagnosis and Therapies in Complementary Medicine, Integrative Medicine, and Traditional Medicine [97-99]. And it also deals with articles related to the translational research or investigations in all medical disciplines, epidemiological studies, and general topics of interest to the biomedical research community.

**Emergency Application of Suggestions**

**Cowpea-based healthy diet and greater prevention against COVID-19**

Eating a Cowpea based healthy diet with vitamin D, is very important during the COVID-19 pandemic because affect our body's ability to prevent, fight and recover from coronavirus infections by improving supporting immune systems [39-47,66-68,94,100,101].

**Cowpea-Based Vaccines Offer Several Advantages**

Conventional vaccines though effective, have high production costs, involve tedious purification processes, and have biosafety issues, requiring time-consuming biosafety tests for commercial production. Plant-based vaccines and antibodies offer several advantages over the conventional systems such as ease of production, storage, higher yields, stability, and safety [40-47,84,88-90,94,102-106].

**Emergency manufacturing and application of vaccines and antiviral drugs**

There is a massive international effort underway to develop diagnostic reagents, vaccines, and antiviral drugs in a bid to slow down the spread of the disease and save lives, with a
rapid supply of vaccines and antiviral drugs for the emergency manufacturing and application against COVID-19 [94,107], by inducing a potent immune response through both humoral and cellular components of the immune system [108,109].

Cowpea emergency use as Social-Vaccine Biomedicine

Cowpea should be used as a potential emergency ‘Social-Vaccine Biomedicine’ because it resists and change unhealthy pandemic social and economic structures and useful metaphor for health promotion [110,111].

Future Suggestions in Research

It will be achieved from typical analysis or justifications of literature review, research articles, specifies hypotheses, backgrounds, problems, brief review of the key literature, reports of clinical research trials or fields, note of any relevant controversies or disagreements in the trials or field, important references and data or conclusions from the work, extensive discussion of relevant literature as well as present investigation results. Emphasize the new and important aspects of the experimental findings and the conclusions that follow from them which is useful to clarify the main findings, then explore possible mechanisms or explanations for these findings, compare and contrast how the research is different from previous reporting and how the observations will significantly advancement of the current problem or knowledge of the subject, state the limitations of the study. Emphasis on claiming priority of work that has not been completed. Then new hypotheses will arise and clearly label them as such trials for education and prevention are the ultimate keys to extending good health and nutrition globally [3,6-14,25-32,34-38,57,58]. In future, Cowpea may be a potential “Social-Vaccine Biomedicine with Safe and Elicits Significant Immune Responses”, and it resists and change unhealthy pandemic social and economic structures and useful metaphor for health promotion [110-112].

Conclusion

Intercropped cowpea plants, could serve as a good “Eco-Friendly Catch Crop or Highly Economical Plants as well as Biomedicines” and “Healthy Cowpea Diet Greater Prevention against COVID-19”, thereby reducing root-knot diseases infection of other vegetables. It conserves our biodiversity contributing towards “Sustainable Climate Health and Development” and it may have important economic implications in agriculture to fulfil its food and nutrition requirement with increasing soil-fertility and improved midday meals by preventing malnutrition in all schools. And highly-trace-tolerance-cowpea legumes may be used, in vaccine formulations or treatments, as one of the most powerful potential-biomedicine, improving natural immunity against COVID-19, enriching science and technology communication applications food security economy. It is the most; cost-effective, easily-available, safe-edible and prepare able-‘Social-Vaccine’ as well as and safe alternative to live replicating COVID-19 vaccines which restarts, a window of hope and opportunity opens for nations to green their recovery the 21st-century economy in ways that are clean, green, healthy, safe and more resilient.

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Conflicts of Interest

The authors declare no conflict of interest. The idea was conceived by Datta SC and his higher secondary students and written by Datta itself.

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