



HOMEOPATHIC MEDICINES-AAKASHMONI WILL BE THE BEST VACCINE AGAINST COVID-19: ENRICHING AGRICULTURE SCIENCE AND TECHNOLOGY COMMUNICATION MECHANISM APPLICATION ISSUES!



Subhas Chandra Datta Ph.D. *1  

*1Headmaster, Secretary and Researcher, Eco-club Research Unit, Kanchannagar D.N.Das High School (HS), Kanchannagar, Burdwan Municipality, Purba Bardhaman, Burdwan-713102, West Bengal, India, Department of Zoology, Visva Bharati, Sriniketan-731235, West Bengal, India.



DOI: <https://doi.org/10.29121/granthaalayah.v8.i11.2020.2458>

Article Type: Research Article

Article Citation: Subhas Chandra Datta Ph.D.. (2020). HOMEOPATHIC MEDICINES-AAKASHMONI WILL BE THE BEST VACCINE AGAINST COVID-19: ENRICHING AGRICULTURE SCIENCE AND TECHNOLOGY COMMUNICATION MECHANISM APPLICATION ISSUES!. International Journal of Research -GRANTHAALAYAH, 8(11), 333-361.
<https://doi.org/10.29121/granthaalayah.v8.i11.2020.2458>

Received Date: 03 October 2020

Accepted Date: 22 November 2020

Keywords:

Homeopathic
Medicines
Aakashmoni
Vaccine Against
Covid-19
Enriching Agriculture
Science
Technology
Communication
Mechanism
Application
Issues

ABSTRACT

Still now, no effective vaccine or treatment for the fifth endemic novel coronavirus COVID-19, forming endemic, is analogous to war, affecting our normal-, private- and professional- life, the planet economy, and also the communities. It is reported from the previous experiments, the homeopathic biomedicines; Aakashmoni or Acaciasides, or Acacia auriculiformis-extract, is being employed traditionally to beat various medical complications. Present pretreatment with ultra-high-diluted homeopathic biomedicine-Aakashmoni, prepared from the fruits of acacia A. Cunn, mixed with water at a particularly low dose, were applied by foliar spray once daily for 15 days @ 10 ml/plant, against present, root-knot-, leaf spot-, powdery mildew-, mosaic- and tukra- mulberry diseases, during a field trials and silkworms rearing. Pretreatment- investigations have confirmed that ultra-high-diluted homeopathic biomedicine Aakashmoni highly effective in ameliorating different mulberry diseases by inducing their natural defense-response against pathogens-infection and leaving no residual toxicity within the leaves to affect the expansion of silkworms also. Presently, no appropriate antiviral drugs are discovered to treat COVID-19. So, to concur matters, “Four Confirmed-Suggestions for Vaccine and Clinical Trials with Homeopathic Biomedicines-Aakashmoni at an especially low dose, Against COVID-19 at by Boosting system for the development of Science and Technology Communication Mechanism Application Issues” forming the ‘Best Vaccine’, which not only shows the clinical, physical, chemical, biological and physiological effects but also on relative molecular mass, explaining the confirmation of mechanism and action of the homeopathic medicines supported scientific experimentations and proofs, and also the future clinical-scientists develop all aspects of clinical-case-reports globally by publishing with the sincere hope that the crisis of human civilization will soon be over and also the whole world may retain in normal forms by fighting against the COVID-19 war.

1. INTRODUCTION

In television or newspapers or social media is always informing that there is currently no proper effective treatment for novel coronavirus disease- COVID-2019 which was first detected on 31st December 2020 in Wuhan City, Hubei Province of China, a cluster of cases of pneumonia of unknown cause, was informed by WHO and was identified as the causative virus by Chinese authorities on 7 January [1]. Our normal life is on hold due to the escalating novel coronavirus COVID-19 emergency. The ongoing spread of the COVID-19 pandemic is having profound effects on our private and professional life, the world economy, and the social organization of the communities we live in [2]. The recent emergence of this virus, which is causing an outbreak of unusual viral pneumonia in patients and different animals which will help to understand the biology and potential risk of coronavirus that exist in richness in wildlife such as bats [3]. The novel coronavirus SARS-CoV-2 that causes COVID-19 is now likely to become the fifth endemic coronavirus in the human population. Recently, scientists are working to decipher its genome to help us stop other coronaviruses from entering the human population. They don't know "the procedure of transfer of the novel coronavirus which causes COVID-19 made the leap from animals to humans" is a puzzle and scientists are trying to solve as humanity comes to grip with the deadly pandemic sweeping the globe and it is concluded that "coronaviruses can jump species boundaries and adapt to new hosts, making it straightforward to predict for the more emergence in the future." How we respond to that will require more research to assist develop public health policy. They point to policy and other measures to help prevent other coronaviruses from becoming a health danger to humans [4]. It is reported that wildlife contains many coronaviruses that could potentially emerge in humans in the future. A very important lesson from this pandemic to help prevent the next one is that humans must not expose them to wildlife, for example by banning 'wet markets' and the trade in wildlife and the pangolins play a vital role in the emergence of SARS-CoV-2 which causes the COVID-19, is still unknown. It is also interesting that the pangolin viruses contain some genomic regions that are very closely related to the human virus and the receptor-binding domain is the most important which dictates how the virus can attach and infect human cells" -said by Professor Holmes[5]. A new coronavirus (CoV) identified as the COVID-19 virus is the etiological agent responsible for the 2019-2020 viral pneumonia outbreak that commenced in Wuhan [6], [7],[8], [9]. For this, WHO responds to the outbreak, the Research and Development Blueprint has been activated to accelerate diagnostics, vaccines, and therapeutics for this novel coronavirus[1]. Whenever turn on television news, some expert is saying "There is currently no effective treatment for coronavirus." Currently, there is no targeted therapeutics and effective treatment options remain very limited which plays a pivotal role in mediating viral replication and transcription, making it an attractive drug target for this virus [10], [11]. It is reported in a chapter entitled "Genetic Resistance to Coronavirus Infection- A Review"[12]. In another study, it is reported that 2019-nCoV is sufficiently divergent from SARS-CoV to be considered a new human-infecting betacoronavirus, and our phylogenetic analysis suggests that bats might be the main host of this virus, an animal which is used at the seafood market in Wuhan might represent an intermediate host facilitating the emergence of the virus in humans. Especially, structural analysis suggests that 2019-nCoV might be able to bind to the angiotensin-converting enzyme 2 receptor in humans. The future evolution, adaptation, and spread of this virus warrant urgent investigation[13]. Recently, in 'India Today' discuss the "Trade in the time of COVID-19: The economic impact of coronavirus on India and beyond" shows the estimates of India's aggressive 21-day lockdown could bring the country's growth down to 2.5 % from the 4.5 %. The effect of coronavirus is likely to be seen long after medical science offers a cure or at least a vaccine [14],[15]. In a joint report from the World Health Organization (WHO) and the World Bank estimates the impact of such a pandemic at 2.2 percent to 4.8 percent of global GDP (US\$3 trillion) [14],[15]. That was well before the world knew of Covid-19. So, the effect of the virus is likely to be seen long after medical science offers a cure or at least a vaccine for Covid-19 (the disease caused by the new coronavirus). That's because the economic cost of shutting down large swathes of the world is going to be steep[14],[15].

It is reported that the novel coronavirus infection became a pandemic because it thrives on asymptomatic patients of Covid-19 and different health agencies the world over has been firm in dealing with symptomatic Covid-19 patients. It will be faced when the real challenge has been to identify those Covid-19 patients who don't show any symptoms which have forced affected countries to revise their death toll because novel coronavirus is still an unknown enemy to humans. It may be possible for the symptoms which are currently atypical for Covid-19 may evolve into key indicators of novel coronavirus infection in months and years to come because, as the World Health Organization warns, this virus is going to stay among humans for a long time [16]. In theory, challenge trials could

enroll volunteers who are at low risk of harm from the virus that causes COVID-19—dubbed SARS-CoV-2—such as young adults who rarely develop serious symptoms after becoming infected naturally. “Now this pandemic situation is analogous to war, in which there is a long tradition of volunteers risking their health and lives on dangerous missions for which they know about the risks and are willing to do so to help save the lives of others,” the letter states. “The delay of every week in the deployment of a vaccine to the seven billion humans on earth will cost thousands of lives.” Foster counters that testing a vaccine in health care workers who are needed in a hot spot also has risks, as it might take them out of work for a time. He hopes the letter “just makes the FDA a little less scared,” stressing that “it’s pretty clear that the only way we’re really finally going to get out of this (pandemic) is when we have an effective vaccine” [17]. Antimalarial drugs widely used against COVID-19 heighten the risk of cardiac arrest. How can doctors minimize the danger? [18].

In the Drug Target Review’s hub for COVID-19 research hub, reported that no vaccine currently available for this coronavirus which has spread swiftly across the globe, resulting in devastating effects on the world’s economy and an ever-increasing number of fatalities. To support collaboration in this field, they have gathered the latest news and updates relating to COVID-19 drug discovery efforts [19].

More than 100 treatments and vaccines are in development to stem the COVID-19 pandemic, and some onlookers have worried that this sprawling and potentially duplicative effort is wasting time and resources. Hoping to bring order to the chaos, the National Institutes of Health (NIH) and major drug companies today announced a plan to stage carefully designed clinical trials of the drugs and vaccines they have decided are the highest priorities for testing and development [20]. On 30 January 2020, Global research and innovation forum: towards a research roadmap; following the recommendations of the Emergency Committee, the Director-General of WHO declared that the outbreak constitutes a Public Health Emergency of International Concern (PHEIC). The world scientists on COVID-19 met at the WHO’s Geneva headquarters from 11 to 12 February 2020 to assess the current level of knowledge regarding the new virus, agree on critical research questions that need to be answered immediately, and ways to work together to accelerate and fund priority research that can contribute to curtail this outbreak and prepare for the future outbreaks [1].

To move forward, it will require new and more efficient solutions, science and technology applications, products, and it has to fulfill all requirements. To meet the challenge of the problems; it is reported that the clinical homeopathic biomedicines; Aakashmoni or Acaciasides (A&B) or *Acacia auriculiformis* -extract, prepared from the funicles or fruits of *Acacia auriculiformis* A. Cunn. (Plate 1), is being used traditionally to overcome various medical complications and it has been used to treat several medical ailments due to its low toxicity and high efficacy and presence of effective bioactive phytoconstituents of this biomedicine and more than thirty-five diseases are effectively controlled with these biomedicines by inducing their natural immunity in animals [21],[22] and it is highly effective in ameliorating different diseases like root-knot, leaf spot, powdery mildew, mosaic and tukra diseases in different plants and root callous by using their defense-response against pathogen infection and leaving no residual toxicity in the leaves to affect the growth [22],[23],[24],[25],[26],[27],[28],[29],[30],[31],[32],[33],[34],[35],[36],[37],[38],[39],[40],[41],[42],[43],[44],[45],[46]. Recently, I published a paper entitled “Enriched Science and Technology Communication Economy in Agriculture by Use of Acaciasides as Potential Bio-Agents Against Various Pathogens” [35],[47]. Biomedicines (any phytomedicines- or agents- of biological origin derived from plants source) provide a new class of biological compounds that stand as a suitable and useful alternative to conventional but hazardous methods of chemical control against pathogens [22],[25],[35].

Our main aim was to further investigate new and more efficient solutions, technologies, and products for controlling disease, by using ultra-high diluted homeopathic biomedicine-Aakashmoni with pretreatment, prepared from the fruits of *Acacia auriculiformis* A. Cunn, mixed with water at an extremely low dose, was applied by foliar spray once daily for 15 days @ 10 ml/plant, against naturally occurring, root-knot-, leaf spot-, powdery mildew-, mosaic- and tukra- diseases of mulberry (*Morus alba* L., cv. S1), in a field trials and silkworms rearing, by inducing their natural defense response for preventing diseases and resource productive economies applications. The main purpose of the present investigation is to confirm the efficacy of pretreatment effects with the Aakashmoni at an extremely low dose, against various mulberry plants-pathogens.

Recently there is 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 or at least a vaccine for COVID-19. Now it is planned to publish four confirmed-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 discover the best vaccines to avoid new coronavirus. Our main goal is to limit infections. To overcome the situation, the confirmed-suggestion for clinical study may be arranged in near future or as early as possible by the researcher for the discovery of the best 'Vaccine' or at least treatment by using ultra-high diluted homeopathic biomedicines- Aakashmoni 30C at an extremely low dose, which may kill the COVID-19 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.

2. MATERIAL AND METHODS

2.1. PREPARATION OF HOMEOPATHIC AAKASHMONI MOTHER TINCTURE

Air-dried and powdered fruits or funicles of *Acacia auriculiformis* A.Cunn. (Plate 1) were extracted with 90% ethanol at room temperature ($25 \pm 2^\circ\text{C}$) for 15 days and was filtered for collecting extract. Later, the ethanol from the extract was removed by evaporation at room temperature ($25 \pm 2^\circ\text{C}$). The residue was dried in a desiccator over anhydrous calcium chloride [22],[23],[32],[35],[46],[47],[48]. The crude residue was dissolved in 90% ethanol at 1 mg/ml concentration and were formed homeopathic mother tincture of *A. auriculiformis*, named Aakashmoni MT (Original solution or crude extract i.e. Mother Tincture) and named is coined about Tagore Rabindranath Thakur [28],[32],[36],[40],[41], [42],[43],[44],[45],[46].



Plate-1. Funicles of *Acacia auriculiformis*.

2.2. PREPARATION OF POTENTIZED LIQUID AAKASHMONI 30C MEDICINE

- The homeopathic mother tincture of *A. auriculiformis*, named Aakashmoni MT were diluted with 90% ethanol (1:100) proportionate in a round vial.
- The vial was filled up to two-thirds of its space, tightly corked.
- And then were given 10 powerful downward strokes of the arm.
- This process of mechanical agitation is called succession. This was the 1st centesimal potency named Aakashmoni1C. All the subsequent potencies were prepared by further diluting each potency with 90% ethanol in the same proportion (1:100) and the mixture was given 10 powerful downward strokes. In this way potencies up to homeopathic biomedicine- Aakashmoni 30C were prepared[28],[32],[36],[40],[41], [42],[43],[44],[45],[46].

2.3. PREPARATION OF MEDICATED AAKASHMONI 30C GLOBULES

- Aakashmoni 30C homeopathic potencies in liquid form can be kept in globules. A vial was filled up to two-thirds of its empty space with sucrose globules of a particular size.
- Few drops of a liquid potency of homeopathic biomedicine-Aakashmoni 30C were poured into the vial to just moisten all the globules.
- The vial was corked and then shaken so that all globules were uniformly moistened.
- The cork was loosened and the vial was turned upside down to allow excess liquid drain out.
- After keeping the vial in the inverted position for nine to ten hours, the vial was turned upright, well crooked, and kept in a cool dry place away from light.
- The globules were then kept in a clean- and dry- vial, and medicated globules were known to retain their properties for many years. In this process the drug-soaked globules homeopathic biomedicine-Aakashmoni 30C was prepared [28],[32],[36],[40],[41], [42],[43],[44],[45],[46].

2.4. PREPARATION OF AAKASHMONI 30C CONTROL GLOBULES

- A vial was filled up to two-thirds of its empty space with sucrose globules of a particular size.
- Few drops of 90% ethanol were poured into the vial to just moisten all the globules.
- The vial was corked and then shaken so that all globules were uniformly moistened.
- The cork was loosened and the vial is turned upside down to allow excess liquid to drain out.
- After keeping the vial in the inverted position for nine to ten hours, the vial was turned upright, well corked, and kept in a cool dry place away from light.
- The dry globules were then kept in a vial to retain their properties for many years.
- In this process the 90% ethanol-soaked control sucrose globules were prepared. The control globules were prepared in the same way for comparison to the preparation of medicated homeopathic medicine-Aakashmoni 30C control globules which were prepared with the 90% ethanol media [28],[32],[36],[40],[41], [42],[43],[44],[45],[46].

2.5. PREPARATION OF HOMEOPATHIC MEDICINE-AAKASHMONI 30C PRETREATMENT -TEST AND -CONTROL SOLUTIONS

The drug-soaked globules of homeopathic medicine-Aakashmoni 30C were then be mixed with sterile distilled water in the proportion of 7.2 mg globules/ml of water. The 90% ethanol soaked globules were then mixed with sterile tap water in the proportion of 7.2 mg globules/ml of water and the pretreatment -control solution was prepared for comparison to the preparation of pretreatment -test solutions[28],[32],[36],[40],[41], [42],[43],[44],[45],[46].

2.6. MORTALITY TEST

Two sets of cavity blocks with 1 ml distilled water containing 50 larvae (J2) of *M. incognita* were taken; one set was treated as control and the other was treated as treatment set. To assess the direct effect of homeopathic medicine-Aakashmoni 30C pretreatment - test solution, the water was removed by pipette from all the treatment sets, and immediately replaced by 1 ml of pretreatment -test solutions of Aakashmoni 30C (7.2 mg globules/ml concentration) were added respectively. To assess the direct effect of the control solution, the control set was received 1 ml of control solution and observed with every 30 minutes interval for a period of 12 hours exposure period at room temperature ($25 \pm 2^\circ\text{C}$). This mortality test was replicated five times. It was noted that both the control (without Aakashmoni) and treatment (with Aakashmoni) set were received sucrose globules. This mortality test was replicated five times[28],[32],[36],[40],[41],[42],[43],[44],[45],[46],[47],[48],[49],[50],[51],[52],[53],[54].

2.7. SITE OF THE PRETREATMENT EXPERIMENTAL PLOTS

The field experiment (Plate 2) was carried out at the Sriniketan Sericultural Composite Unit, Government of West Bengal, India where the temperature was $28 \pm 5^\circ\text{C}$ and relative humidity was $75 \pm 5\%$ (Plate 2) [11],[12]. Throughout the year, the whole mulberry field was naturally infected with root-knot disease of mulberry plants (*Morus alba* L., cv. S1) caused by *Meloidogyne incognita* (Kofoid & White) Chitwood root-knot nematodes pathogens. And every year in September-October occurrence of four foliar diseases were seen and these were: leaf spot disease caused by *Cercosporam moricola* (Cooke) fungus pathogens, powdery mildew disease caused by *Phyllactinia corylea* (Pers.) Karst fungus pathogens, mosaic disease caused by mosaic virus pathogens, and tukra disease caused by *Maconellicoccus hirsutus* (Green) mealybug pathogens [22],[25],[35],[28],[32],[36],[40],[41],[42],[43],[45],[46],[47],[48],[49],[50],[51],[52],[53],[54].



Plate- 2. Field grown with mulberry plants naturally infected with *M. incognita*.

2.8. ESTIMATION OF THE NEMATODE PATHOGEN POPULATION

Soil and root samples [22],[25],[50],[51] were taken at random from a sericulture field spreading over an area of 5.6 acres of land to determine the extent and intensity of *Meloidogyne incognita* (Kofoid & White) Chitwood nematode pathogen infestation. Later, two areas (in the same locality and climatic condition) each measuring 0.02 ha; one naturally root-knot disease infected untreated field and other naturally root-knot disease infected pretreated field, were demarcated in the mulberry field where there were no soil differences as well as environmental factor [22],[24],[25],[27],[28],[32],[36],[28],[36],[43],[44],[50],[51],[52],[53],[54],[55],[56].

2.9. PREPARATION OF FIELDS

The first 0.02 ha nematode infected (2863 ± 55 J2 /1 kg of soil) sandy soil area ($18889.76 \times 1066.80 \times 45.72$ cm³) was mixed with the yard manure (2:1 vol/vol). Every day, at least 40 random sampling of moist rhizospheric soil (200g of soil i.e., each sample collected by making a hole of 1.8 cm wide and 6 cm deep) were done in the nematode infected area for 30 days and were assessed the *M. incognita* population [22],[24],[25],[27],[28],[32],[36],[28],[36],[43],[44],[50],[51],[52],[53],[54],[55],[56] and this naturally infected soil-filled area, demarking untreated field, was replicated thrice. The other 0.02 ha ($18889.76 \times 1066.80 \times 45.72$ cm³) naturally *M. incognita* infected sandy soil field was also prepared by mixing yard manure (2:1vol/vol), removing weeds, irrigating water and interchanging among the soil for uniform distribution of manure and nematodes in the naturally infected field which was estimated by regular soil sampling like a same process of

previous one. This naturally infected soil-filled area, demarking the pretreated field, was also replicated thrice, [25], [32],[35]

2.10. PLANTATION OF MULBERRY CUTTING

Mature three years old mulberry cutting, *Morus alba* L., cv. S1 (average 25cm length and 20g fresh weight) collected from the same sericulture field, were planted with a gap of 45cm throughout the experimental fields where there were no soil differences and climatic conditions. The planted mulberry cuttings were allowed to grow for a period of three months. Regular rhizospheric soil and root sampling (at random) were done for estimation of the nematode population during this three month growth period of mulberry in all fields [25],[26],[27],[28],[29],[32],[35],[50],[51]. At least 80 number at random rhizospheric soil sampling (200g in each sample) were collected from rhizospheric root-soil area of root (10-15cm X 10-15cm) and at least 40 number at random root sampling (2g fresh root in each sample) were collected from newly formed roots (or gall roots) for determining the intensity or presence of nematodes in all the pretreatment experimental fields.

2.11. DIVISION OF GROUPS AND PLOTS

After three months of growth of mulberry, the *M. incognita* population was estimated in the rhizospheric soil as well as roots fields [25],[26],[27],[28],[29],[32],[35],[50],[51] (at least 40 at random sampling in each area) of mulberry plants in each area of the mulberry field. The *M. incognita* infected mulberry plants were achieved growth of 50-60 cm in height. The infected mulberry plants were divided into 16 plots (Plate 2), each measuring the area of 472.44cm X 533.4cm X 45.72cm. The mulberry plants divided into two plant groups; untreated plant groups and pretreated plant groups and each group has 8-plots (20plants/plot). At first all the plants were pruned, manured with NPK, and irrigated every 7 days. Rhizospheric soil was interchanged among the plants to keep the nematode infestation as uniform as possible in the naturally infected field. After pruning, the plants were allowed to grow for a period of 137 days when their root-knot, leaf spot, powdery mildew, viral and tukra diseases were assessed [32],[33],[38],[39],[56],[57]. The field trial was replicated three times.

2.12. PRETREATMENT WITH AAKASHMONI 30C

- Seventy six days after pruning, of mulberry plants, all the homeopathic pretreatment were done by foliar spray @10 ml/plant (7.2 mg/ml concentration) once daily for 15 days with Aakashmoni 30C -test solutions and -control solution respectively [28],[32],[36],[41],[42],[43],[45],[46].
- Pretreatments were given in such a way that all the leaves of the plants were completely sprayed with solutions. During spraying, the soil surface underneath each plant was covered with a polyethylene sheet. Aakashmoni 30C pretreated groups were received 10ml/plant test solutions (7.2 mg Aakashmoni globules / ml concentration) respectively times [28],[32],[36],[41],[42],[43],[45],[46].
- The infected untreated with Aakashmoni (control) groups were similarly received 10 ml/plant pretreated -control solutions only (7.2 mg 90% ethanol soaked globules/ml concentration) times [28],[32],[36],[41],[42],[43],[45],[46].
- It is noted that the infected untreated with Aakashmoni (controls), were not untreated, but treated with the solution made from sugar pills soaked in the alcohol medium. The infected untreated (control) was only pretreated with the solutions made from sugar globules in the alcohol medium (i.e. without medicine Aakashmoni). At fifteen days after the second treatment all the parameters of diseases were assessed again for each group times [28],[32],[36],[41],[42],[43],[45],[46]. All the data were used for statistical analysis by Student's t-test.

2.13. ANALYSIS OF RESIDUE

A thin layer chromatography plate (TLC) was made with silica gel. Mulberry leaves, collected one day after the last pretreatment were homogenized in a blender and extracted with ethanol. The residue was applied at one end of the plate as a small circular spot. The initial spot should be compact for reproducible Rf- values and zones should

always be placed at the same distance from the surface of the developer. Here, the residues run in thin layer chromatography plate (TLC) with the standard from the homeopathic medicine- Aakashmoni 30C -pretreatment test substances [22],[25][26],[27],[28][30],[31],[32],[35],[36],[46].

2.14. PLANT PATHOGENS CAUSED MULBERRY DISEASES

- **Root-knot Disease:** Rhizospheric soil and root sample were taken at random from all the infected plots. *Meloidogyne incognita* populations (10 samples / plot in each plant group) were estimated in the rhizospheric soil as well as roots[22],[25][26],[27],[28],[30],[31],[32],[35],[36],[46],[50] of infected mulberry plants. Total number and surface area of leaves of all plant groups were counted [22],[25][26],[27],[28][30],[31],[32],[35],[36],[46]. Total number of root-galls / plant were counted in the infected roots of mulberry plants[22],[46],[51][52][53],[54],[55],[56],[57],[58]. The total protein content of the leaf and root samples (10 at random sampling/plot) from each of the 16 plots was determined,[57],[58], [59]. All the data from experiments were counted for statistical analysis by the student's t-test. In this field trial, sacrifices of mulberry plants were not done due to well-reported pathological characters from our previous experiments[22],[25][26],[27],[28],[30],[31],[32],[34],[36][37],[46].
- **Foliar Diseases:** Every year in September-October occurring, the different foliar diseases, observed in the sericulture field, were: leaf spot disease caused by *Cercosporam moricola* (Cooke) fungus pathogens, tukra disease (Plate 3) caused by *Maconellicoccus hirsutus* (Green) mealybug pathogens, powdery mildew disease (Plate 4) caused by *Phyllactinia corylea* (Pers.) Karst fungus pathogens and mosaic disease (Plate 5) caused by mosaic virus pathogens. All the diseases identified according to their characteristic symptoms by the experts concerned[22],[25][26],[27],[28],[30],[31],[56],[60],[61],[62]. Diseased leaves of each type were counted in each plot [22],[25],[26],[27],[28],[30], [31],[56],[60],[61],[62].The percentage of disease infection based on diseased leaf surface area [22],[25],[26],[27],[28],[30],[31],[33],[59],[63],[64].

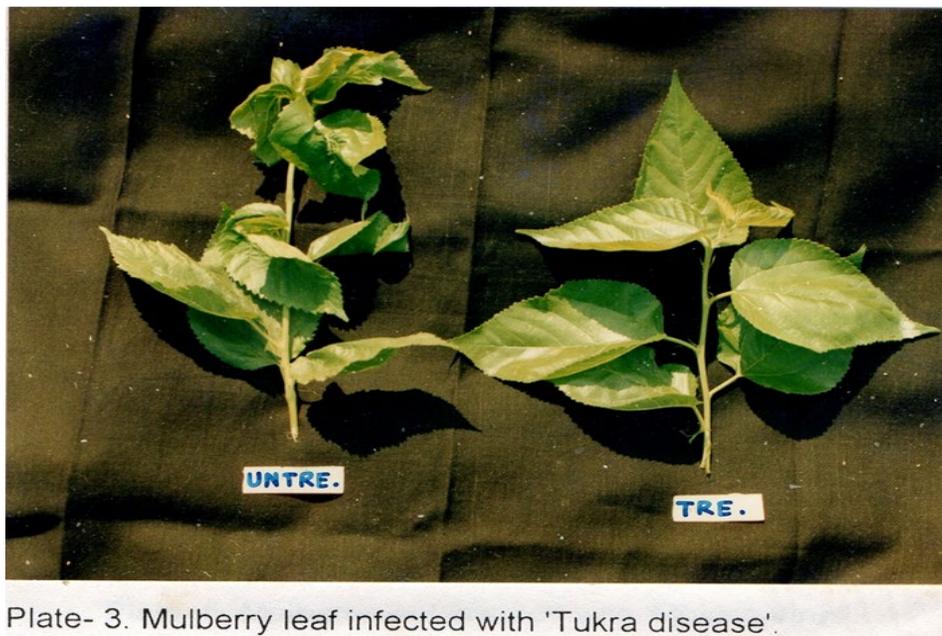


Plate- 3. Mulberry leaf infected with 'Tukra disease'.

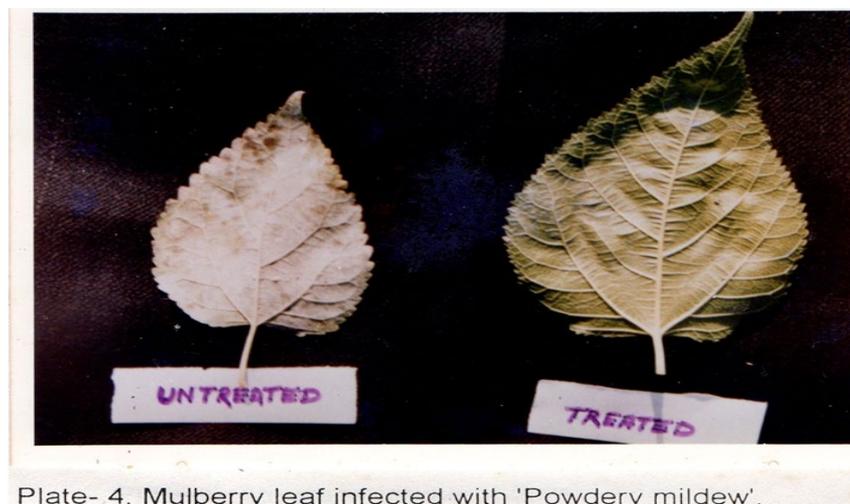


Plate- 4. Mulberry leaf infected with 'Powdery mildew'.

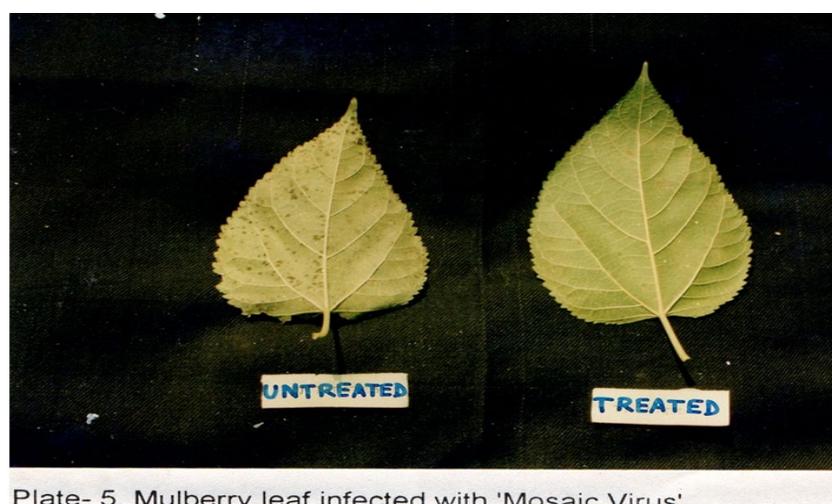


Plate- 5. Mulberry leaf infected with 'Mosaic Virus'.

- **Rearing of Silkworms:** The eggs of a mother moth of the multivoltine 'Nistari' race (*Bombyx mori* L.) supplied by Regional Sericultural Research and Training Institute, Berhampore-742101, India, after hatching (93% hatching rate) and brushing 1st stage silkworm larvae in the rearing tray, the larvae were divided into two batches (180 silkworm larvae/batch) and reared [22],[25],[26],[27],[28],[30],[31],[33][34],[35],[59][63],[64],[64],[65]. The larvae of infected untreated batch (control) were fed with the leaves of pathogens infected diseased leaves of mulberry plants from infected untreated (control) plots and the larvae of the infected pretreated batch were fed with the leaves of homeopathic biomedicine-Aakashmoni 30C -pretreated leaves of mulberry plants from infected treated (control) plots. Fresh leaves were given to the larvae 4- times daily. Mulberry leaves were used for feeding fifteen days after the last pretreatment with Aakashmoni 30C. The larvae were kept inside the rearing chamber at $27 \pm 2^\circ\text{C}$ and $70 \pm 15\%$ RH. The fresh weight of the larvae and that of the leaves served were recorded daily for each batch until the larvae started spinning. The consumption of fresh leaves [(Fresh leaves served - Dry leaves residues - Fresh leaves initially consumed) X Moisture loss], number of feeding and number of feeding day to cocoon formation, number of escaping feeding during molting, molting span days, and mortality rate were recorded. The fresh silk gland weight of mature 5th instars larvae (Plate 6) (before start spinning), starting time to spinning (Plate 7), span of spinning, fresh cocoon weight, fresh shell weight, silk layer ratio (SR % = Shell weight / Cocoon weight X 100), effective rate of rearing (ERR % = Number of cocoon harvested / Number of silkworms hatched X 100), sex ratio percentage (Number of male adults emerged / Number of female adult emerged X 100) and egg-laying capacity of mother moth were determined [9][10],[11],[12][13],[14][15],[17],[18],[46]. For statistical analysis by student's t-test, ten mature 5th instars silkworm larvae for fresh silk gland weight and ten cocoons for fresh shell

weight were dissected out in each batch including a replica of all batches [22],[25][26],[27],[28],[30],[31],[33],[34][35],[59],[63],[64],[64],[65]. All the data from the rearing trial were used for statistical analysis by the student's t-test.



Plate- 6. 5th instar larvae of *Bombyx mori* L.



Plate- 7. Cocoon formation by 5th instar larvae.

2.15. SCIENCE TECHNOLOGY COMMUNICATION APPLICATIONS

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 "Pretreatment with Ultra High Diluted homeopathic Aakashmoni 30C, at an Extremely Low Doses, Use as Potential Cost-Effective Biomedicine Against Various Pathogens: Enriching Science and Technology Communication Applications Economy and Healthcare-, Defense response- and Immunity- as well as Biodiversity Conservation- Issues" in different audiovisual 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 Homeopathic Medicine for all over the globe [22],[25][26],[27],[28],[30],[31],[33],[34][35],[59],[63],[64],[64],[65].

2.16. 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. Especially, emphasize the new and important aspects of the study and the conclusions that follow from them. For experimental studies it 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 of 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 globally [22],[25][26],[27],[28],[30],[31],[33],[34],[35],[36],[37],[40],[41],[42],[43],[45],[46],[47],[52],[65].

3. RESULTS

3.1. TOXICITY TEST ON MORTALITY

It was observed that homeopathic biomedicines-Aakashmoni 30C had no direct toxic effects on nematodes mortality within the exposure period of 12 hours at room temperature (25 ± 2°C). For this reason, no data were presented in the results section.

3.2. ANALYSIS OF RESIDUES TOXICITY

Mulberry leaves collected fifteen days after the last pretreatment, did not contain any toxic residue of the homeopathic medicines-Aakashmoni 30C - pretreated test substance by thin-layer chromatography plate (TLC).

3.3. ROOT-KNOT DISEASE

Table 1: shows the pretreatment effects of homeopathic medicine-Aakashmoni 30C on *M. incognita* pathogens infected mulberry plants in a field trial replicated thrice (P<0.01 by 't'- test). All naturally infected plants (Pretreated plant group) pretreated with Aakashmoni 30C showed increase number and surface area of leaves, and higher protein content in leaves and root than infected untreated (control) plants (untreated plant group). In all infected Aakashmoni 30C -pretreated plants, the population of root-knot nematodes decreased significantly in rhizospheric soil and as well as in roots than infected untreated (control) plants. The number of root galls also decreased significantly after Aakashmoni 30C- pretreatment.

Table 1: Effects of pretreatments with ultra-high diluted homeopathic medicine-Aakashmoni 30C, at an extremely low dose, on root-knot diseases infected mulberry plants in a field trial replicated thrice

| Pretreatment groups (20 plants/ Plot & 8 plots / group) | Average number of leaves / plant | | Average surface area of leaves (sq.cm) | | Average protein content (%) | | | | Average nematode population | | | | Average number of root galls/plant | |
|---|----------------------------------|--------|--|---------|-----------------------------|--------|--------|--------|-----------------------------|--------|-----------|--------|------------------------------------|--------|
| | Day-0 | Day-30 | Day-0 | Day-30 | Leaf | | Root | | Soil(200g) | | Root (2g) | | Day-0 | Day-30 |
| | | | | | Day-0 | Day-30 | Day-0 | Day-30 | Day-0 | Day-30 | Day-0 | Day-30 | | |
| Infected Untreated | 390ax | 373ay | 7998ax | 8003ax | 2.98ax | 2.01ay | 4.39ax | 3.29ay | 1931ax | 2406ay | 638ax | 2084ay | 1233ax | 2078ay |
| (Control) | ±15.71 | ±14.21 | ±179.64 | ±177.61 | ±0.12 | ±0.07 | ±0.17 | ±0.07 | ±77.10 | ±96.64 | ±24.22 | ±97.40 | ±49.13 | ±78.62 |
| Infected Pretreated | 390ax | 438by | 7996ax | 25258by | 2.98ax | 8.98by | 4.39ax | 7.99by | 1933ax | 32by | 638ax | 17by | 1236ax | 19by |
| | ±12.80 | ±12.12 | ±179.44 | ±387.02 | ±0.12 | ±0.09 | ±0.17 | ±0.03 | ±77.11 | ±0.33 | ±20.03 | ±1.31 | ±46.90 | ±1.07 |

Day-0 means before 2nd Pretreatment.
 Day-30 means after 2nd Pretreatment.
 a,b,- Significant difference by 't'-test (P<0.01) in the same column.
 x,y- Significant difference by 't'- test (P<0.01) in the same row between day-0 and day-30 of each character.

3.4. FOLIAR DISEASES

Table 2: shows the pretreatment effects of homeopathic medicines Aakashmoni 30C on leaf spot, powdery mildew, mosaic viral and tukra diseases of mulberry plants in a field trial replicated thrice assessed initially (Day- 0) and after a period of 30 days (Day -30) by 't'- test (P<0.01). Aakashmoni 30C with pretreatment significantly reduced the number of leaves infected with leaf spot, powdery mildew (Plate 4), mosaic virus (Plate 5) and tukra (Plate 3) as compared to the untreated condition (Day- 0). The percentage of control achieved was 62.08% for leaf spot, 77.89% for powdery mildew (Plate 4), 64.91% for mosaic virus (Plate 5), and 38.42% for tukra infection as compared to the untreated level (Day- 0). In case of infected untreated plots leaf spot, powdery mildew, mosaic viral and tukra diseases showed naturally 27.80 %, 17.76 %, 29.37 % and 21.20 % reduction respectively, in 30 days (Day -30).

Table 2: Effects of pretreated with ultra-high diluted homeopathic medicine-Aakashmoni 30C, at an extremely low dose, on leaf spot, powdery mildew, mosaic and tukra diseases of mulberry plants in a field replicated thrice assessed initially (Day-0) and after a period of 30 days (Day-30)

| Pretreatment groups (20plants/ Plot & 8 plots /group) | Average number of disease-infected leaves / plant (%) | | | | | | | |
|--|---|-------------------------|----------------|-------------------------|-------------|-------------------------|-------------|-------------------------|
| | Leaf spot | | Powdery mildew | | Mosaic | | Tukra | |
| | Day-0 | Day-30 | Day-0 | Day-30 | Day-30 | Day-30 | Day-0 | Day-30 |
| Infected Untreated (Control) | 72.68a x | 98.37ay | 80.75a x | 98.53ay | 68.68a x | 98.05ay | 57.18a x | 78.36ay |
| | ±2.28 | ±3.91 (<27.80%)) | ±3.23 | ±3.91 (<17.76%)) | ±2.74 | ±4.10 (<29.37%)) | ±2.36 | ±3.26 (<21.20%)) |
| Infected Pretreated | 72.68a x | 8.48by | 80.85a x | 2.96by | 68.34a x | 3.41by | 57.10a x | 18.66by |
| | ±2.31 | ±2.42 (>62.08%)) | ±3.01 | ±0.01 (>77.89%)) | ±2.60 | ±0.13 (>64.91%)) | ±2.34 | ±0.41 (>38.42%)) |

Day-0 means before 2nd Pretreatment.
 Day-30 means after 2nd Pretreatment.
 a,b- Significant difference by 't'-test (P<0.01) in the same column.
 x,y- Significant difference by 't'- test (P<0.01) in the same row between day-0 and day-30 of each character.
 (-) - Figures in the parentheses show percentage of reduction on day-30 as compared to the initial level on day-0 in the same row.

3.5. EFFECTS ON FEEDING SILKWORMS

Table 3: shows the pretreatment effects of homeopathic Aakashmoni 30C on diseased infected mulberry plants in a silkworm rearing and field trial replicated thrice on the feeding, growth, and mortality of silkworms (P<0.01 by 't'-test). The average consumption of leaves by the 5th instars (Plate 6), the average number of feeding to cocoon formation (Plate 7), the average number of feeding day to cocoon formation, the average number of escaping-feeding during molting and average molting span days were less for Aakashmoni 30C -pretreated plants than for infected untreated (control) ones. The average mortality rate percent (%) was nil with Aakashmoni 30C -pretreated

plant groups and 56% with infected untreated (control) one. However, the average fresh weight of the 5th instars larvae was higher with Aakashmoni 30C -pretreated plants than with infected untreated (control) one.

Table 3: Effects of disease-infected and ultra-high diluted homeopathic medicine-Aakashmoni 30C-pretreated, at an extremely low dose, mulberry plants in a field on the feeding and growth of silkworms in the silkworms rearing trials (replicated thrice)

| Pretreatment batches (180 larvae/ batch)* | Average number of | | | | | | |
|---|--|------------------------------|----------------------------------|-----------------------------------|--|--|---------------------|
| | Consumption of leaves(g) (5th instar)* | Feeding to cocoon formation* | Feeding day to cocoon formation* | Escaping feeding during moulting* | Moulting span day (1st to 5th instar)* | Larval fresh weight (g) (5th instar)** | Mortality rate (%)* |
| Infected Untreated (Control) | 4.08a | 76.00a | 19.00a | 51.00a | 13.00a | 1.48a | 59.98 |
| | ±0.16 | ±2.37 | ±0.50 | ±1.74 | ±0.57 | ±0.03 | ±2.43 |
| Infected Pretreated | 2.26b | 61.00b | 14.00b | 20.00b | 5.00b | 2.66b | Nil |
| | ±0.08 | ±1.30 | ±0.24 | ±0.48 | ±0.02 | ±0.02 | |

a,b- different small letters in a column show significant difference by 't'- test (P<0.01).
 * - average values of 180 silk worm larvae in triplicate.
 + - average values of 10 silk worm larvae were dissected in triplicate.

3.6. EFFECTS ON SILK PRODUCTION AND REARING PRACTICES

Table 4: shows the effects of feeding Aakashmoni 30C -pretreated mulberry leaves on silk production, spinning characters, and rearing practices in a silkworm rearing (Plate 7) and field trial replicated thrice (P<0.01 by 't'-test). The average fresh silk gland weight, average fresh cocoon weight, average fresh shell weight, and average shell ratio (SR %) were higher with Aakashmoni 30C -pretreated plants than with infected untreated (control) one. Notably, average starting time to spinning day and average span of spinning day (i.e. duration of span) were fewer with the Aakashmoni 30C -pretreated than with infected untreated (control) ones. The average effective rate of rearing (ERR%), average sex ratio percentage, and average egg-laying capacity were significantly higher with all Aakashmoni 30C -pretreated groups.

Table 4: Effects of disease-infected and ultra-high diluted homeopathic medicine-Aakashmoni 30C-pretreated, at an extremely low dose, mulberry plants in a field on the growth of silk gland, spinning time, cocoon, shell, rearing, sex ratio and egg laying

| Pretreatment batches (180 larvae/ batch)* | Average number of | | | | | | | | |
|---|---|---------------------------------------|------------------------|--------------------------|--------------------------|---------------------|------------------------------------|----------------------------|---------------------|
| | Silk gland fresh weight (g) (5 th instar)+ | Starting time to spinning (at day-)*+ | Span of spinning day * | Cocoon fresh weight (g)* | Shell fresh weight (g) + | Shell ratio (SR %)+ | Effective rate of rearing (ERR %)* | Sex ratio (Male / Female%) | Egg laying capacity |
| Infected Untreated (Control) | 0.98a | 34.00a | 10.00a | 0.85a | 0.11a | 12.94a | 21.37a | 76.00a | 320.00a |

| | | | | | | | | | |
|---------------------|-------|------------|-------|-----------|-----------|------------|------------|--------|-------------|
| | ±0.06 | ±1.50 | ±0.45 | ±0.0 3 | ±0.0 1 | ±0.4 9 | ±0.83 | ±1.82 | ±13. 91 |
| Infected Pretreated | 1.98b | 20.00 b | 3.00b | 1.09 b | 0.26 b | 22.0 1b | 97.48 b | 68.00b | 548. 00b |
| | ±0.02 | ±0.31 | ±0.02 | ±0.0 1 | ±0.0 2 | ±0.6 7 | ±2.06 | ±1.02 | ±10. 02 |

a,b- different small letters in a column show significant difference by 't'- test (P<0.01).

* - average values of 180 silk worm larvae in triplicate.

+ - average values of 10 silk worm larvae and cocoon were dissected in triplicate.

capacity in the silkworms rearing trials (replicated thrice)

3.7. FUTURE SUGGESTIONS IN RESEARCH

The results fulfill the goal of a research proposal because the present Pretreatments with homeopathic biomedicines-Aakashmoni 30C 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.

3.8. SCIENCE TECHNOLOGY COMMUNICATION APPLICATIONS

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 "Pretreatment with Homeopathic Medicine-Aakashmoni 30C, use as Against Various Plant Pathogens: Enriching Science and Technology Communication Applications Economy in Agriculture-, 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.

4. DISCUSSION

4.1. DIFFERENT POSITIVE EFFECTS

The ultra-high diluted homeopathic biomedicine-Aakashmoni 30C, ones again not only reduced root-knot, leaf spot, powdery mildew, viral, and tukra diseases but also improved the nutritive value (especially protein) of the pretreated leaves of the naturally infected plants [28],[32],[36],[40],[41],[42],[43],[45],[46]. Homeopathic medicine-Aakashmoni 30C -pretreatments directly influences on the consumption of leaves, number of feeding, and number of feeding day to cocoon formation, and indirectly effects on molting stage in the infected treated groups from this trial. And due to the ill development of infected untreated (control) batches silkworm larvae took more time to molt which is proved from the number of escaping feeding during molting. Higher nutritive value especially protein of treated plants contributed to higher growth of silkworm larvae, silk gland weight, cocoon weight, and shell weight which increase silk production significantly for commercial purposes [28],[32],[36],[40],[41],[42],[43],[45],[46].

4.2. ECONOMICAL GROWTH WITH CLIMATE STABILITY

The improved health of the larvae, cocoon weight, silk gland, and shell weight from the Aakashmoni 30C -pretreated groups of infected plants might have resulted in the fewer starting time to spinning and span of spinning day and the total elimination of the mortality rate. Or, the Aakashmoni 30C might have infused into mulberry leaves a substance that has conferred disease resistance on growing silkworm larvae by releasing defense-related natural products by plants [22],[25],[26],[27],[28],[32],[33],[34],[35],[36],[37],[38],[39],[40],[41],[42],[43],[54],[55],[66].

For this, the effective rate of rearing (ERR %) is very high in all Aakashmoni 30C -pretreated treatment batches which enriches the sericulture industry in many ways, especially for commercial purposes, and which increased agriculture, economies, social structures, and ecosystems and may hold lessons for a future of increasing climate stability.

4.3. DEFENSE RESPONSE ON GROWING SILKWORM LARVAE

The mulberry leaves did not contain any toxic residues of the Aakashmoni 30C -pretreated test substances by the thin layer chromatography (TLC). Rather, the Aakashmoni 30C might have induced natural defense response in the test plants against all above mentioned pathogens and has conferred defense response on growing larvae [22],[25],[26],[27],[28],[32],[36],[37],[38],[39],[40],[41],[42],[43],[45],[46],[54],[55],[66],[67],[68].

4.4. DIVERSE DISEASE RESISTANCE MECHANISMS

The present study clearly showed that ultrahigh diluted homeopathic drug- Aakashmoni 30C was pretreated as effective or potential biomedicine at extremely low doses and it had no direct toxic effect on plants but to the pathogens of mulberry plants. The Aakashmoni 30C could induce some resistance in mulberry against pathogens infection. It can be assumed that Aakashmoni 30C could induce the synthesis of some antagonistic substances in the pretreated plants. Lectins accumulated in gall regions of root of *Hibiscus esculentus* infected with *M. incognita* [28], [32],[35],[36],[40],[41],[42],[43],[45],[46],[69]. Systemic acquired resistance can be induced by in different crop plants by localized virus infection, non-pathogenic and pathogenic microorganisms, or their culture filtrates or by salicylic acid [22],[25],[26],[27],[28],[32],[36],[37],[38],[39],[40],[41],[42],[43],[44],[54],[68],[69],[70],[71],[72]. Plant-derived natural products have important functions in ecological interactions. In some cases these compounds are deployed to sites of pathogen challenged by vesicle-mediated trafficking. Polar vesicle trafficking of natural products, proteins, and other, as yet uncharacterized, cargo is emerging as a common theme in investigations of diverse disease resistance mechanisms in plants [66]. Sequestration implies the involvement of a specific transport process. For example, the defense-related triterpene glycoside avenaacin A-1 is synthesized [73].

4.5. AAKASHMONI 30C SYNTHESIS VARIOUS ANTIGENS FOR DEFENSE

It is reported that a plant plasma membrane ATP binding cassette-type transporter is involved in antifungal terpenoid secretion [74]. Functional analysis has confirmed a role for this transporter in disease resistance [75]. Though, *M. incognita* is known to share common antigens with its host plants [76]. It appeared that during natural infection with the nematode, host plants showed minimal defense responses to the nematode because of this antigenic similarity [75]. It is reported that the pure compounds acaciasides (A&B) contain two triterpenoids saponins [25],[32],[35],[48],[54] and these saponins provide defense to the test plants against pathogens [77],[78],[79],[80],[81]. Aakashmoni 30C must be responsible for the defense resistance of the mulberry. The ultrahigh diluted drug -Aakashmoni 30C may synthesis various antigens particularly (low molecular weight proteins; 5kd to 25kd) and induce defense responses involving several pathogenesis-related proteins in which the naturally infected plant pathogens fail to tolerate [25],[32],[35],[48],[53],[54]. It is observed that in lady's finger plants treated with NE (nematode extract) i.e. pretreated showed the highest number of root proteins (no. 24) but in inoculated untreated root was 18 number and uninoculated untreated root was 11 number [25],[32],[35],[37]. Those showed that NE served as a stimulus for the expression of many proteins particularly the defense-related proteins which later provide resistance to pathogen- nematodes infection. However, in the test plant were treated with NE after inoculation i.e. post-treated with live nematodes did not show much increase in the number of proteins (23) in root [25],[32],[35],[37].

4.6. AAKASHMONI 30C EXPRESSION OF SOME DEFENSE GENE

Those showed that nematode pathogens infestation somehow serve as a repressor for the expression of defense gene in plant [25],[28],[32],[35],[36],[37],[40],[41],[42],[43],[45],[46]. From this point of view, it can be assumed that ultrahigh diluted pretreated-homeopathic biomedical drug -Aakashmoni 30C at an extremely low dose, serve

as a stimulus for the expression of many new induced defense-related PR-proteins by systemic acquired resistance which provides defense-resistance to various pathogens causing major diseases of plants. It can be told that Aakashmoni 30C acquiring systemic resistance could serve very effective eco-friendly phytomedicine and promoted growth of test plants by inducing their defense responses of the host plants by expression of some new proteins against many plant pathogens infection causing major diseases and this ultrahigh diluted pretreated homeopathic-biomedical drug conserved our biodiversity and makes pollution free environment.

4.7. AAKASHMONI AS UNIVERSAL POTENTIAL PHYTOMEDICINES

Now the key question is, whether plant-derived natural products, ultra-high diluted pretreated- homeopathic drug –Aakashmoni 30C at an extremely low dose, can be used as potential biomedical by inducing defense- response against various plant pathogens causing major mulberry diseases in a field trial and silkworms rearing. It is surprising that all naturally infected Aakashmoni 30C -pretreated plants not only are less affected by pathogens but also have a better growth than infected untreated (control) plants. The positive effects of growth may be responsible for defense resistance against pathogens. Aakashmoni 30C might have induced synthesis of many new proteins which have stimulated increase photosynthesis rate, stomata- activity and water retention capacity of Aakashmoni 30C -pretreated plants [28],[30],[31],[32],[33],[34],[35],[36],[37],[38],[39],[40],[41],[42],[43],[45],[46],[82]. The positive effects of growth on disease-infected pretreated plants might not only be responsible for defense resistance to pathogens but also improved growth of silkworm larvae and silk gland weight, cocoon weight, shell weight, effective rate of rearing (ERR%), sex ratio percentage and egg laying capacity of mother moth with zero mortality rate were higher with all Aakashmoni 30C -pretreated groups which increase silk production for commercial purpose. It is proved from the results that silk production is higher in all Aakashmoni 30C -pretreated plants than infected untreated treated (control) plants. Now the answer is, ultrahigh diluted pretreated- homeopathic medicine –Aakashmoni 30C at an extremely low dose was not only highly effective in ameliorating different mulberry diseases but also enriched sericulture industry as well as agriculture industry. And it is also noted that pretreatment with, ultrahigh diluted homeopathic medicine- Aakashmoni MT and -Aakashmoni 30C at an extremely low dose, and Acaciasides (A&B) bioagents at low dose, show more or less same results [25],[28],[32],[35],[36],[37],[40],[41],[42],[43],[45],[46].

4.8. FUTURE SUGGESTIONS IN AAKASHMONI RESEARCH

- **Identical genetic material:** 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. All, the scientists indicated hundreds of genes that appeared to have been transferred from bacteria, archaea, fungi, other microorganisms, and plants to animals, they report online today in '*Genome Biology*'. 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 [83]. The genomic sequencing showed that this pathogenic coronavirus is 96.2% identical to a bat coronavirus and shares a 79.5% sequence identity to SARS-CoV [84],[85],[86]
- **Structure and function of genetic material:** 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 [87]. 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[88]. 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.
- **Common virus-derived sequences:** 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[89]. It is known that the “Human Genome Is Full of Viruses and Our body requires viruses, but viruses don’t always require a body” [90].

- **Structure-based design of antiviral drug:** It is reported in a chapter entitled “Genetic Resistance to Coronavirus Infection- A Review” where 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 [12]. 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. Structure-based design of antiviral drug candidates targeting the SARS-CoV-2 main protease [91].
- **Immune system creates a blueprint:** 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 [92].
- **Use as traditional medicine:** In the evolution of human history shows the evidence that people is using traditional medicine for therapeutic purpose. The reports from the World Health Organization (WHO) claim that 70%- 80% population is primarily dependent on animals and plant-based medicines because of limited or no access to medical services. The drugs obtained from wild plants and animals are not only used as traditional medicines but also as raw materials in the formulation of modern allopathic and herbal preparations [1],[14]. It is reported that as an internal treatment, the innate response of the patient's immune system to the presence of an invading microorganism has been studied, highlighting anti-microbial peptides as the host's own defense molecules. This work shows a compilation of the most relevant and current antimicrobial peptides that could be used as potential therapeutic agents against microorganisms located in the skin and related to acne disease [93]. But in a case report of a congenital immune deficiency disease –WHIM syndrome is a rare primary immunodeficiency disorder and it is an acronym for some of the characteristic symptoms of the disorder; warts, hypogammaglobulinemia, infections, and myelokathexis. This case report provides data of a patient with recurrent respiratory and cutaneous infection who was diagnosed with WHIM syndrome was presented with chronic productive cough, fever, pleuritic chest pain, chills and sweating also [94].
- **Low toxicity with high efficacy of the of major bioactive phytoconstituents:** It is reported that the acaciasides (A&B) from fruits of *A. auriculiformis*, is being used traditionally to overcome various medical complications like sore eyes, aches, rheumatism, allergy, itching, and rashes. Besides, it has also been proven for many pharmacological activities like central nervous system depressant activity, antioxidant, antimicrobial, antimalarial, antifilarial, anticestocidal, antimutagenic, chemopreventive, spermicidal, wound healing, hepatoprotective and antidiabetic activity due to its low toxicity (LD50 = 3741.7 mg/kg) and high efficacy and the various phytochemical investigations reveal the presence of chief constituents as flavonoids and triterpenoid saponin glycosides. The low toxicity and the presence of major bioactive phytoconstituents like flavonoids and triterpenoid saponin glycosides are responsible for a therapeutic remedy for various diseases and pharmacological activities respectively. It has been used to treat several medical ailments due to its low toxicity and the presence of bioactive phytoconstituents[95]. Isolated saponins (acaciasides -A&-B acylated triterpenoid bisglycoside) were screened for their antifilarial activity and results were found to be significant[96]. A US-patent claimed the potential of acaciasides (A&B) isolated from *A. auriculiformis* for the prevention of HIV infection and as a vaginal contraceptive [97].
- **Human trial with saponin-based vaccine:** Recently, in the Drug Target Review 2020, NovavaxInc, which contributed to the development of other epidemic vaccines, has announced it is currently in pre-

clinical animal trials for several multiple nanoparticle COVID-19 vaccine candidates. The biotechnology company has announced its efforts to help in creating a vaccine against SARS-CoV-2. The company stated they have used their recombinant protein nanoparticle technology platform to generate antigens derived from the coronavirus spike protein and their previous experience working with other coronaviruses, including both MERS and SARS, allowed them to mobilize quickly against COVID-19 and successfully complete the critical preliminary steps to engineer viable vaccine candidates, as said by Stanley Erck, President and Chief Executive Officer of Novavax which adjuvant is saponin-based and it has shown a “potent and well-tolerated effect” [98],[99].

- **Successful vaccination:** It requires four components; 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 [100]. And should follow the guideline of WHO entitled “Vaccine-preventable diseases and vaccines” [101]. 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 [102]. 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) [103]. Studies in animals have suggested that angiotensin-converting-enzyme (ACE) inhibitors and angiotensin-receptor blockers (ARBs) may up-regulate ACE2 expression [104], 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 [105].
- **Fulfill the target:** Here, the results and discussion fulfill the goal for the research suggestions because the present pretreatments with ultra-high diluted homeopathic medicines -Aakashmoni MT or -Aakashmoni 30C liquid or -Aakashmoni 30C globules, prepared from the fruits of *A. auriculiformis*, mixed with water at an extremely low dose, need 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 resides, therefore, the guidelines for research proposals are more exacting and less formal than a general project proposal [28], [32],[35],[36],[40],[41] [42],[43],[45],[46],[47].

4.9. SUGGESTIONS FOR VACCINE

4.10. NOW FIRST SUGGESTION

In homeopathic biomedicines, Aakashmoni MT (original solution or crude extract i.e., Mother Tincture) may be used in vaccine formulations to regulate immune function by acting as -antioxidants and -scavenge oxidative stress. Because, it is already well-known that the presence of chief constituents as flavonoids and two acylated triterpenoid bisglycoside saponins present in pure compound-acaciasides (A&B) isolated from the crude extract of *A. auriculiformis* fruits [14],[22],[25],[37],[39],[41],[48][53],[77],[99],[106],[107],[108],[109],[110],[111],[112],[113]. So, the adjuvant Aakashmoni MT may be used with recombinant protein nanoparticle antigens derived from the coronavirus spike protein and combine these antigens with its adjuvant Aakashmoni MT for the final formulation of the vaccine and it may be shown a “potent and well-tolerated effect” through stimulating the entry of antigen-presenting cells into the injection site and enhancing antigen presentation in local lymph nodes, boosting immune responses [32],[35],[98],[99]. In a letter as an e-mail, the Science Advisory Board Net, at [Express Cells](#), for their business of creating better knock-in cell lines for drug discovery, toxicology, and other biologic research and add for purchase SARS-CoV-2 Spike Protein (NC_045512.2), SARS-CoV-2 Nucleocapsid Protein (NC_045512.2), TMPRSS2 (NM_001135099.1), ACE2 (NM_021804.3), BSG (CD147) (NM_001728.3), SARS-CoV Nucleocapsid Protein (MK062179.1), SARS-CoV Spike Protein (MK062179.1), MERS-CoV Nucleocapsid Protein (NC_019843.3), MERS-CoV Spike Protein (NC_019843.3) [112] and the readily available coronavirus spike proteins may be helped to use for

vaccine preparation which may fight against “COVID Toes among kids: New symptom of novel coronavirus infection” [113]. 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 [114] and in a clinical study shows the efficiency of triple antibiotic mixture and propolis as intracanal medication in revascularization process in immature apex [111],[114],[115]. 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[20],[100],[116]. It is also studied the cost-effectiveness of emergency care interventions in low and middle-income countries like India [117]. But it will not be -cost-effective and not easily -prepare able and -available.

4.11. NOW SECOND SUGGESTION

The adjuvant homeopathic medicines -Aakashmoni MT may be used with anti-Human antibodies like IgG (A80-104A, A80-105A), IgM (A80-100A, A80-101A), & IgA (A80-102A, A80-103A) and offer treatments or vaccine preparation of COVID-19 (SARS-CoV-2) and it may also be accelerated the discovery to improve lives [100], [116],[117],[118]. After getting successful clinical trials, the -WHO, -ClinicalTrials.gov, -U.S. National Library of Medicine (NLM) and - National Institutes of Health (NIH), may be permitted for the use as a vaccine for treatments [20],[100],[116],[117],[118]. But it will not also be -cost-effective and not easily -prepare able and -available.

4.12. NOW THIRD SUGGESTION

Ultra-high diluted homeopathic medicines -Aakashmoni 30C liquid @ 10 drops mixed with 10 ml of sterile distilled- or pure drinking -water, maybe orally administered once daily (before taking any food) for 15 days, against naturally occurring virus infections 15-days before symptom onset OR illness onset (as a vaccine) OR onset of symptoms where patients in hospital-associated COVID-19 infections has been reported (treatments)[119]. In the case of treatment, depending on the disease intensity, the dose may be increased 3-4 times a day. It is moderately cost-effective and easily -prepare able and -available drug [117]. After getting permission from the -WHO, -ClinicalTrials.gov, -U.S. National Library of Medicine (NLM) and - National Institutes of Health (NIH), the Aakashmoni 30C liquid, may be directly used for “Clinical trial or as a homeopathic vaccine” because ultra-high diluted homeopathic medicine -Aakashmoni 30C liquid, have actually no drug molecules (due to cross the Avogadro number i.e., 6.023×10^{23}) [20],[100],[116],[120]. It is well known that Avogadro limit washed out by nano-associates of water which continue as information carriers in serial dilutions and end up with the generalized concept of medicines and these structures, in their turn, influence near-matching bio-molecules to serve as medicines, like antibiotics, leading to a generalized concept of medicine[120],[121].

4.13. NOW FORTH SUGGESTION

Ultra-high diluted homeopathic medicine globules -Aakashmoni 30C @ 10 medicated globules (7.2mg), maybe orally administered once daily for 15 days, against naturally occurring virus infections 15-days before symptom onset OR illness onset (as a vaccine) OR onset of symptoms where patients admitted in hospital with COVID-19 infections has been reported (treatments) [119]. In the case of treatment, depending on the disease intensity, the dose may also be increased 3-4 times a day. It is the most cost-effective and easy -prepare able and -available drug [117]. The homeopathic medicine Aakashmoni 30C globules 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 [20],[100],[116],[121].

4.14. NOW RECENT POSITION OF VACCINES

Recently, scientists in Israel, Netherlands claim progress in COVID-19 monoclonal antibody— 47D11 trials ‘Such a neutralizing antibody has the potential to alter the course of infection’. But both the treatment -efforts are also in initial stages[122]. In 6th May 2020, E-TOI News focus, “Italy claims to develop first COVID-19 vaccine: Here is the current status of all the potential coronavirus vaccines” [123]. Italian scientists have claimed to develop a vaccine that has successfully generated antibodies in mice that work on human cells [123]. Oxford University initiated a phase-1 human clinical trial of its vaccine on April 23, where two volunteers were injected and Elisa Granato is one of the first ones to get injected with the vaccine. The vaccine -ChAdOx1 nCoV-19- was developed under three months by the University’s Jenner Institute. It uses a weakened strain of common cold virus (adenovirus) that causes infections in chimpanzees. For the vaccine to work, scientists have taken the genetic material of the novel coronavirus present on the surface of the virus and put it in the virus [123]. India applied the very old theory for vaccine preparations and plasma therapy is being treated as yet another complementary treatment to help the COVID-19 patients recover[123]. Several hospitals across India have dived in to use plasma therapy for treating the coronavirus patients with the emergency consultancy of Health Minister, Government of India and they apply the HIV-drug combo, has been one of the most touted treatment plans for the COVID-19, which antiviral drug combination was initially found to be effective in treating the coronavirus patients. Prime Minister Narendra Modi reviewed India’s status in developing a vaccine for the novel coronavirus, drug discovery, diagnosis, and testing on Tuesday. It was found that as of now more than 30 vaccines are in different stages of development while a few are ready to go to clinical trial stages. It is also important to note that the Pune-based Serum Institute of India is the world’s largest vaccine maker and India produces 60 percent of the world’s vaccines [123]. The world has joined hands to find a vaccine for the novel coronavirus and scientists and medical researchers across the globe are scrambling for the first breakthrough. Since the virus spreads easily and is already overwhelming the healthcare system of most countries, a vaccine is the most effective way of putting a pause on the spread of infectious disease. At present, almost 80 groups globally are working at break-neck speed for the same, even though a vaccine fit for humans normally takes years to develop. Currently, there are 111 potential vaccines for the SARS-CoV-2 which is in different stages of clinical trials [123].

4.15. NOW ADVANTAGE OF AAKASHMONI 30C

While a cure or vaccine for COVID-19 is not available, in the absence of any side-effects and adverse interactions with any conventional medicines along with a robust safety profile and repeated evidence-based successes against viral infections, ultra-high diluted homeopathic biomedicine; - Aakashmoni MT or -Aakashmoni 30C liquid or - Aakashmoni 30C globules, at an extremely low doses, may play an important role in the fight against COVID-19 [119].

4.16. NOW PLANNED FOR PUBLICATIONS

Now it is planned to publish four- 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 opportunity or discovery of vaccine 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. It is requested all to support this initiative and help to reach the targeted audience. At this critical time in the global response to the COVID-19 pandemic, I am proud to be working alongside the scientific community as a coworker that accelerates research, discovery, and testing to contain the SARS-CoV-2 outbreak. 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 practice, and acts as an indispensable source to access the pharmacological developments. 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 homeopathic vaccines or social

vaccine or COVID-19 epidemic model biomedical research community [124],[125],[126],[127],[128],[129],[130],[131],[132],[133],[134],[135],[136].

4.17. NOW THE MOST VITAL QUESTIONN: HOW THE HOMEOPATHIC MEDICINE AAKASHMONI WILL BE THE BEST OR MOST EFFECTIVE AGAINST CORVID-19?

Anyone has been struggled trying to understand the ‘idea or message which are trying to communicate is not clear at all’ of this paper to avail. It is started by writing about plants that silkworms feed on being helped by Aakashmoni 30c, and then it speculates that the remedy may be boosting the immune system of the plants, and then it leaps to COVID-19. Acacia extract is useful against different plant diseases, but how does that suggest it will be effective against COVID-19? That's the part that is difficult to understand. The following points may be useful as follows:

- **1st cause:** It is already reported that the fruits of *Acacia auriculiformis*, is being used traditionally to overcome various medical complications like sore eyes, aches, rheumatism, allergy, itching, and rashes. Besides, it has also been proven for many pharmacological activities like central nervous system depressant activity, antioxidant, antimicrobial, antimalarial, antilarial, anticestodals, antimutagenic, chemopreventive, spermicidal, wound healing, hepatoprotective and antidiabetic activity due to its low toxicity (LD50 = 3741.7 mg/kg) and high efficacy and the various phytochemical investigations reveal the presence of chief constituents as flavonoids and triterpenoid saponin glycosides. The low toxicity and the presence of major bioactive phytoconstituents like flavonoids and triterpenoid saponin glycosides [77],[78],[79],[80],[81] are responsible for a therapeutic remedy for various diseases and pharmacological activities respectively. It has been used to treat several medical ailments due to its low toxicity and the presence of bioactive phytoconstituents [95]. Isolated saponins (acaciasides -A&B acylated triterpenoid bisglycoside) were screened for their antifilarial activity and results were found to be significant [96]. A US-patent claimed the potential of acaciasides (A&B) isolated from *A. auriculiformis* for the prevention of HIV infection and as a vaginal contraceptive also [97].
- **2nd cause:** Recently, in the Drug Target Review 2020, NovavaxInc, which contributed to the development of other epidemic vaccines, has announced it is currently in pre-clinical animal trials for several multiple nanoparticle COVID-19 vaccine candidates. The biotechnology company has announced its efforts to help in creating a vaccine against SARS-CoV-2. The company stated they have used their recombinant protein nanoparticle technology platform to generate antigens derived from the coronavirus spike protein and their previous experience working with other coronaviruses, including both MERS and SARS, allowed them to mobilize quickly against COVID-19 and successfully complete the critical preliminary steps to engineer viable vaccine candidates, as said by Stanley Erck, President and Chief Executive Officer of Novavax which adjuvant is “Saponin-Based” and it has shown a “potent and well-tolerated effect as Vaccine” [76][77],[98],[99],[124],[132],[134].
- **3rd cause:** It is already confirmed that the clinical biomedicines; homeopathic-Aakashmoni or *Acacia auriculiformis* –extract or Acaciasides (A&B) or Phytomedicines or Biomedicines or Bioagents, prepared from the funicles or fruits of *Acacia auriculiformis* A. Cunn, is being used traditionally to overcome various medical complications and it has been used to treat several medical ailments due to its low toxicity and high efficacy and presence of effective bioactive phytoconstituents of the present medicines, and more than thirty-five animal-diseases are also effectively controlled with these medicines by inducing their natural immunity and it is highly effective (strong biological effects of homeopathy) in ameliorating different virus diseases [21],[22],[24],[25],[27],[29],[30],[31],[34],[35],[36],[38],[39],[40][41],[42],[43],[44],[45],[46],[47],[65],[74],[75],[93],[94],[95],[96],[97],[104],[105],[112],[117],[126],[127],[129],[130],[131],[133],[135],[136],[137] and it is managing viral infections like COVID-19 [117] forming ‘Homeopathic Vaccination’ also [112].
- **4th cause:** The antigenic similarity and plant defence with two triterpenoids saponins [25],[32],[35],[48],[54],[74],[75],[77],[78],[79],[80],[81], humans 100-genes from other organisms [81],[82],[83],[84], horizontal gene transfers [83], genomic characterization and epidemiology [85], complicated relationship with viruses [86],[87] the human genome is full of viruses [88] disease and our

genes [90] human immunomics initiative (HII) and artificial intelligence, genomics, systems biology, bioinformatics[100] different phytopharmacological investigations of *Acacia auriculiformis* [93] [94],[95],[96],[97],[98],[99],[100],[101],[102],[103],[104],[105]and WHO entitled "Vaccine-preventable diseases and vaccines" [101]with "Reduce Wait Time in the emergency as much as possible" [102]and the World Health Organization claim that 70%- 80% population is primarily dependent on animals and plant-based medicines[1],[14] etc.

- **5thcause:** It is also confirmed that the higher nutritive value especially protein of the homeopathic medicine-Aakashmoni 30C -treated plants contributed to higher growth of silkworm larvae, silk gland weight, cocoon weight, and shell weight which increase silk production significantly[28],[32],[36][40],[41],[42],[43],[45],[46], and the improved health of the larvae from the Aakashmoni 30C -pretreated groups might have resulted in the fewer starting time to spinning and span of spinning day and the total elimination of the mortality rate. The homeopathic medicine-Aakashmoni 30C might have infused into mulberry leaves a substance that has conferred disease resistance on growing silkworm larvae by releasing defense-related natural products [22],[25],[26],[27],[28],[32],[33],[34],[35],[36],[37] [38],[39],[40],[41],[42],[43],[54],[55],[66] and synthesis of different new molecular weight-related pathogenesis-related (PR)-proteins or formation of new proteins[24],[25],[36],[132],[134], and the Aakashmoni 30C homeopathic remedies boost the immune system in all level against coronavirus, are working quite well for covid-19 [137],[138].
- **6thcause:** And this homeopathic medicine-Aakashmoni 30C not only shows the clinical, physical, chemical, biological and physiological effects but also on molecular weight [124],[125],[126],[127],[129],[130],[131],[132],[133],[134],[136]. It explains the mechanism of homeopathic medicines and the action of the microdoses based on scientific experimentations and proofs [24],[25],[36],[135],[137]. So the use of the phrase- "Enriching Science and Technology Communications Applications" is emphasized on the suitable interesting scientific issue in this communication for global application, an overview of the works on the potentized high-diluted cost-effective homeopathic drugs[124],[125],[126],[127],[129],[130],[131],[132],[133],[134],[136],[137],[138].
- **7thcause:** It is felt grandiose considering from the above results as evidences to write, "It may help for the preparation of a vaccine against COVID-19, by increasing immunity and enriching science and technology communications applications, cost-effectiveness and biodiversity conservations as well as bio-economy-applications issues, reviving human civilizations in the old form" and the Aakashmoni 30C homeopathic are working quite well for covid-19 [124],[125],[126],[127],[129],[130],[131],[132],[133],[134],[136],[137],[138].
- **8thcause:** Some evidences from literature history; "Coronavirus Updated Dashboard, Viral Nano-Biotechnology and Potential Global-Personalized-Vaccine" etc., are missing here? And it might also try to offer it as 'Homeobook' in every house for betterment of the society with no side effects of potentized high-diluted cost-effective homeopathic drugs. It is clear that modeling requires both reliable data and an accurate understanding of how disease spreads, and that the field of epidemiological modeling requires a diversity of approaches, and support for this field must increase and be coordinated, with a designation of responsibilities among funding agencies with public needs to prep for vaccine side effects for non-homeopathic biomedicines[124],[125],[126],[127],[129],[130],[131],[132],[133],[134],[136],[137],[138].

5. CONCLUSIONS

It can be concluded that the plant-derived natural products, ultra-high-diluted cost-effective pretreated-ecofriendly easily available homeopathic drug -Aakashmoni 30C, at an extremely low dose, not only used as a potential biomedical drug by inducing defense- response against various pathogens causing major mulberry diseases, which is sometimes devastating to all kinds of -natural and -artificial vegetation in a field, and silkworms rearing, leaving no residual toxicity in the leaves to affect the growth of silkworms, but also conserve our biodiversity which will contribute towards "Sustainable Climate, Health, and Development". No appropriate antiviral drugs are

currently discovered to treat COVID-19. So, to concur the situation, “Four Suggestions for the Best Vaccine and Clinical Trials with Homeopathic Biomedicines- Aakashmoni at an extremely low dose, Against COVID-19 by Boosting Immune System for the Improvement of Science and Technology Communication Applications Economy “*Mechanism Issues*” forming the ‘Best Vaccine’, which not only shows the clinical, physical, chemical, biological and physiological effects but also on molecular weight, with mechanism and action of the homeopathic medicines based on scientific experimentations and proofs, and the future clinical-scientists develop all aspects of clinical-case-reports globally by publishing in the Journal with the sincere hope that this crisis will soon be over and the whole world may retain in normal forms by fighting against COVID-19 war.

SOURCES OF FUNDING

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

CONFLICT OF INTEREST

The author has declared that no competing interests exist.

ACKNOWLEDGMENT

The work has been supported by Prof. N.C.Sukul and Prof. S.P.Sinha Babu, Department of Zoology, Visva-Bharati and Joint Director, Sriniketan Sericultural Composite Unit. I am thankful to the eminent Senior Consultant Physician & Homeopathist Sri Kalipada Das, Ex-Teacher and Social Worker and Writer, for inspiration and guidance. I express my deep gratitude to Mr. Rakesh Khan, Secretary and Mr. Subhendu Bose, President with all Young Green-Members of the “International NGO named Burdwan Green Haunter and Students’ Goal” for arranging several awareness programmed on COVID-19 with “Health Care, Biomedicines, Vaccination, Agriculture, Biodiversity Conservation and Enriching Science and Technology Communication Economy Application Issues”. Last but not the least; I am thankful to the eminent educationist Sri Tapaprakash Bhattacharya for inspiration and guidance.

REFERENCES

- [1] WHO (2020) Coronavirus disease (COVID-2019) An international randomised trial of candidate vaccines against COVID-19 version. World Health Organization’s, R&D Blueprint 19 April 2020. <https://www.who.int/blueprint/priority-diseases/key-action/novel-coronavirus/en>
- [2] Filetti S (2020) The COVID-19 pandemic requires a unified global response. Springer Science Business Media, LLC, part of Springer Nature 2020, Endocrine. <https://doi.org/10.1007/s12020-020-02293-6>.
- [3] Chen Y, Liu Q, Guo D (2020) Emerging coronaviruses: Genome structure, replication, and pathogenesis. J Med Virol 92: 418–423. <https://doi.org/10.1002/jmv.25681>
- [4] Science Daily (2020) The genetic quest to understand COVID-19: Unlocking the genetic code of the novel coronavirus will help us prevent other diseases. Science Daily, Science News, 26 March 2020, University of Sydney. <www.sciencedaily.com/releases/2020/03/200326144357.htm>.
- [5] Zhang YZ, Holmes EC (2020) A Genomic Perspective on the Origin and Emergence of SARS-CoV-2. Cell DOI: 10.1016/j.cell.2020.03.035.
- [6] Zhu N, et al. (2020) A novel coronavirus from patients with pneumonia in China, 2019. New England Journal of Medicine 2020.
- [7] Qun Li, et al. (2020) Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus Infected Pneumonia. New England Journal of Medicine 2020.
- [8] Zhou P, et al. (2020) A pneumonia outbreak associated with a new coronavirus of probable bat origin. Nature 2020 <https://doi.org/10.1038/s41586-020-2012-7>.
- [9] Wu F, et al. (2020) A new coronavirus associated with human respiratory disease in China. Nature 2020 <https://doi.org/10.1038/s41586-020-2008-3>.

- [10] Anand K, et al. (2002) Structure of coronavirus main proteinase reveals combination of a chymotrypsin fold with an extra α -helical domain. *The EMBO Journal* 21: 3213-3224.
- [11] Yang, H. T. et al. (2003) The crystal structures of severe acute respiratory syndrome virus main protease and its complex with an inhibitor. *Proceedings of the National Academy of Sciences of the United States of America* 100, 13190-13195, <https://doi.org/10.1073/pnas.1835675100> (2003).
- [12] Buschman E, Skamene E (2019) Genetic Resistance to Coronavirus Infection- A Review. Part of the *Advances in Experimental Medicine and Biology* book series (AEMB, volume 380), Springer Nature Switzerland AG. Part of Springer Nature. *Corona- and Related Viruses* pp 1-11.
- [13] Roujian L, Xiang Z, Juan L, Peihua N, Bo Y, Honglong W, et al. (2020) Genomic characterisation and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding. *Vol 395*: 565-574, February 22, 2020, www.thelancet.com.
- [14] IUCN (1993) The International Union for Conservation of Nature and Natural Resources, World Health Organization and World-Wide Fund for Nature. *Guidelines on the conservation of medicinal plants*. Gland, Switzerland.
- [15] Mukewar P (2020) Trade in the time of COVID-19: The economic impact of coronavirus on India and beyond. *India Today*, New Delhi March 29, 2020 updated: March 30.
- [16] Julka A (2020) Coronavirus India News Live Updates 24 April 2020: COVID-19 Cases Soar Past 24000. *Grain Mart News*, April 24, 2020.
- [17] Cohen J (2020) United States should allow volunteers to be infected with coronavirus to test vaccines, lawmakers argue. *Science*, Posted in: Health Science and Policy Coronavirus. Apr. 21, 2020, 11:55 AM. doi:10.1126/science.abc3772.
- [18] Servick K (2020) Antimalarials widely used against COVID-19 heighten risk of cardiac arrest. How can doctors minimize the danger? *Science*, Apr. 21, 2020, 3:40 PM, Posted in: Health Coronavirus. *Drug Target Review* (2020) COVID-19 research hub. https://www.drugtargetreview.com/research_hub/covid-19/.
- [19] Kaiser J (2020) To streamline coronavirus vaccine and drug efforts, NIH and firms join. *Science* 17th April 2020 ScienceMag.org.
- [20] Sukul NC (1994) Control of plant parasitic nematodes by plant substances. *Allelopathy in Agriculture and Forestry*, (Edited by S.S. Narwal and P. Tauro), Scientific Publisher, Jodhpur, India pp.183-211.
- [21] Datta SC, Sinhababu SP, Sukul NC (1997) Improved growth of silkworms from effective treatment of mulberry diseases by *Acacia auriculiformis* extract. *Sericologia* 37(4): 707-712.
- [22] Datta SC, Das R, Chatterjee K, Mondal B, Das R (2016) Amaranth Plant: Protects Climate, Health and Development by Controlling Root-Knot Disease. *Journal of Environmental & Analytical Toxicology* 6: 341. doi:10.4172/2161-0525.1000341
- [23] Datta SC, Datta R (2016) Prevention and control of root-knot disease of mulberry plants using bioagents amaranth plants: improving sericulture by protecting climate health, health and development. *Journal of Environment & Sociobiology* 13: 191-200.
- [24] Datta SC (1999) Bio-nematicides in the control of root-knot nematode. Ph.D. thesis, Department of Zoology, VisvaBharati, Santiniketan-731235, West Bengal, India (unpublished).
- [25] Datta, SC (2005a) Plant Parasitic nematodes – an agricultural problem and its solutions. *Visva-Bharati Quarterly* 11 (3&4): 89-100.
- [26] Datta, SC (2005b) Possible use of amaranth as catch crop for root-knot nematodes intercropped with mulberry. *Journal of Environment & Sociobiology* 2(1&2): 61-65.
- [27] Datta, SC (2006a) Effects of Cina on root-knot disease of mulberry. *Homeopathy* 95 (2): 98-102.
- [28] Datta, SC (2006b) Possible use of amaranth as catch crop for root-knot nematodes intercropped with okra. *Phytomorphology* 56(3&4): 113-116.
- [29] Datta SC (2007) Mulberry disease: Problem in sericulture. *SEBA NEWSLETTER, Environment & Sociobiology* 4(1): 7-10.
- [30] Datta SC (2008) Enriched sericulture by controlling major mulberry diseases with some cost-effective ways-a review. *Journal of Environment & Sociobiology* (In press).
- [31] Datta SC (2019a) Enriched Sericulture from Effective Treatment of Mulberry Diseases by Homeopathic Medicines. *Advances in Biochemistry and Biotechnology* 7: 084. DOI: 10.29011/2574-7258.000084.

doi:10.1126/science.abc3816.

- [32] Datta SC (2019b) Improved Environment by Identification of More Susceptible Plant Between Cowpea and Mulberry for Root-Knot Disease. Open Access Journal of Environmental Soil Science 2(5)-242-245. OAJESS.MS.ID.000148. DOI: 10.32474/OAJESS.2019.02.000148.
- [33] Datta SC (2019c) Improved midday meal by using cowpea as eco-friendly crop controlling root-knot forming global, green, growth and green economy. International Journal of Advanced Research (Accepted).
- [34] Datta SC (2020a) Enriched Science and Technology Communication Economy in Agriculture by Use of Acacia sides as Potential Bio-Agents against Various Pathogens. Advances in Agriculture, Horticulture and Entomology. 2020(2): 1-13. AAHE-117
- [35] Datta SC, Datta R (2006a) Liquid homeopathic medicine Cina enriches sericulture industry. Journal of Environment & Sociobiology 3(1): 55-60.
- [36] Datta SC, Datta R (2006b) Defence resistance of okra against root-knot disease by bio-nematicides. Proceedings of the Zoological Society 59 (2): 75-82.
- [37] Datta SC, Datta R (2007a) Intercropping amaranth with mulberry for managing root-knot nematodes and improving sericulture. Sericologia 47(3): 297-302.
- [38] Datta SC, Datta R (2007b) Increased silk production by effective treatment of naturally infected root-knot and black leaf spot diseases of mulberry with acaciasides. Journal of Environment & Sociobiology 4(2): 209-214.
- [39] Datta SC, Datta R (2011a) Homeopathic Medicines Protect Environment, Health and Development by Controlling Mulberry Diseases. Journal of Homeopathy and Ayurvedic Medicine 1:104. doi:10.4172/2167-1206.1000104.
- [40] Datta SC, Datta R (2011b) Control of Root-Knot Disease of Mulberry by Homeopathic Medicines: Aakashmoni [Mt, 30c, 200c & 1000c] Prepared from the Funicles of Acacia Auriculiformis. Hpathy Ezine.
- [41] Datta SC, Datta R (2012a) Homeopathic Medicines Protect Environment, Health and Development by Controlling Mulberry Diseases. Journal of Traditional Medicine & Clinical Naturopathy 1: 104.
- [42] Datta SC, Datta R (2012b) Homeopathic medicine Aakashmoni 200C control mulberry diseases enriching sericulture. Journal of Current Chemistry Pharmacological Science 2: 37-49.
- [43] Datta SC, Datta R (2012c) Efficacy of pure compound- acaciasides A and B as potential bioagents against various plant pathogens. Journal of Environment & Sociobiology 9(1): 17-26.
- [44] Datta SC, Datta R (2013) Efficacy of homeopathic medicine-Aakashmoni as potential bio-agent against various plant pathogens. Journal of Biochemistry & Pharmacology 2: 4. <http://dx.doi.org/10.4172/2167-0501.S1.004>.
- [45] Sukul NC, Sinhababu SP, Datta SC, Nandi B, Sukul A (2001) Nematotoxic effect of Acacia auriculiformis and Artemisia nilagirica against root-knot nematodes. Allelopathy Journal 8: 65-72.
- [46] Staff Reporter Agnirath (2020) Corona Vaccine will be prepared from the extract of fruits of Aakashmoni plants- Opinion of the researcher of Burdwan. 15th April 2020 Agnirath News, Burdwan 21(8): 1-3. Reg.No.-WBBEN/2000/2086.
- [47] Mahato SB, Pal BC, Nandi AK (1992) Structure elucidation of two acylated triterpenoid bioglycosides from Acacia auriculiformis Cunn. Tetrahedron 48: 6717-6728.
- [48] Fenner LM (1962) Determination of nematode mortality. Plant Disease Reporter 46: 383.
- [49] Christie JR, Perry VG (1951) Removing nematodes from soil. Proceeding of Helminthological Society, Washington 18: 106-108.
- [50] Sukul NC (1987) Soil and plant nematodes. West Bengal State Book Board Publisher pp.1-271.
- [51] Datta SC, Sinhababu SP, Banerjee N, Ghosh K, Sukul NC (1998a) Melodogyne incognita extract reduces Melodogyne incognita infestation in tomato. Indian Journal of Nematology 28(1): 1-5.
- [52] Sukul NC (1992) Plants antagonistic to plant parasitic nematodes. Indian Review of Life Science 12: 23-52.
- [53] Datta SC, Datta R, Sukul A, Sukul NC, Sinhababu SP (2000) Relative attractiveness of four species of vegetable crops for Meloidogyne Incognita. Environment and Ecology 18: 233-235.
- [54] Teotia RS, Sen SK (1994) Mulberry disease in India and their control. Sericologia 34: 1-18.
- [55] Chatterjee A, Sukul NC (1981) Total protein of galled roots as an index of root-knot nematode infestation of lady's finger plants. Phytopathology 71: 372-274.
- [56] Lowry OH, Rossebrough NJ, Farr AR, Randall RJ (1951) Protein measurement with the Folin-phenol reagent. Journal of Biological Chemistry 193: 265-275.

- [57] James WC (1971) An illustrated series of assessment keys for plant diseases, their preparation and usage. Canadian Plant Disease Survey 51(2): 39-65.
- [58] Powell NT (1971) Interaction between nematodes and fungi in disease complexes. Annual Review Phytopathology 9(2): 253-274.
- [59] Gunasekhar V, Govindaiah, Datta RK (1994) Occurrence of *Altemaria* leaf blight of mulberry and a key for disease assessment. International Journal of Tropical Plant Disease 12(1): 53-57.
- [60] Govindaiah, Sharma DD (1994) Root-knot nematode, *Meloidogyne incognita* infesting mulberry - a review. Indian Journal of Sericulture 33(2): 110-113.
- [61] Allen SJ, Brown JF, Kochman JK (1983) Production of inoculum and field assessment of *Atemaria helianthi* on sunflower. Plant Disease 67(8): 665-668.
- [62] Sengupta K, Govindaiah, Pradip K, Murthuza B (1990) Hand book on pest and disease control of mulberry and silkworm- Disease of mulberry and their control. United Nations Economic and Social Commission for Asia and Pacific, Bangkok, Thailand pp. 1-14.
- [63] Datta SC, Datta R (2008b) Potentized *Artemisia nilagirica* Extract Cina Increases Silk Production and Effective Rate of Rearing in a Field Trial. Hpathy Ezine.
- [64] Field B, Jordan F, Osbourn A (2006) First encounters – development of defence – related natural products by plants. New Phytologist 172: 193-207.
- [65] Datta SC (2010) The Role of Cina in the Field of Enriched Sericulture. Hpathy Ezine.
- [66] Klessig, Daniel F, Malamy J (1994) The salicylic acid signal in plants. Plant Molecular Biology 26: 1439-1458.
- [67] Das S, Sukul NC, Mitra D, Sarkar H (1989) Distribution of lectin in nematode infested and uninfested roots of *Hibiscus esculentus*. Nematologica Mediterranea 17: 123-125.
- [68] Mauch-Mani B, Metraux JP (1998) Salicylic acid and systemic acquired resistance to pathogen attack. Annals of Botany 82: 535-540.
- [69] Nandi B, Kundu K, Banerjee N, Sinhababu SP (2003) Salicylic acid –induced suppression of *Meloidogyne incognita* infestation of okra and cowpea. Nematology 5: 747-752.
- [70] Ross AF (1961) Systemic acquired resistance induced by localized virus infection in plants. Virology 14: 340-358.
- [71] Osbourn AE, Clarke BR, Lunness P, Scott PR, Daniels MJ (1994) An oat species lacking avenacin is susceptible to infection by *Gaeumannomyces graminis* var. *tritici*. Physiological and Molecular Plant Pathology 45: 457-467.
- [72] Jasinski M, Stukkens Y, Degand H, Purnelle B, Marchand-Brynaert J, Boutry M (2001) A plant plasma membrane ATP binding cassette-type transporter is involved in antifungal terpenoid secretion. Plant Cell 13: 1095-1107.
- [73] Stukkens Y, Bultreys A, Grec S, Trombik T, Vanham D, Boutry M (2005) NpPDRI, a pleiotropic drug resistance-type ATP-binding cassette transporter from *Nicotiana plumbaginifolia*, plays a major role in plant pathogen defense. Plant Physiology 139: 341-352.
- [74] McClure MA, Misaghi I, Night Edward LJ (1973) Shared antigens of parasitic Nematodes and Host plants. Nature 244: 306.
- [75] Osbourn AE (1996) Saponins and plant defence– a soap story. Trends in Plant Science 1: 4-9.
- [76] Papadopoulou K, Melton RE, Leggett M, Daniels MJ, Osbourn AE (1999) Compromised disease resistance in saponin-deficient plants. Proceedings of the National Academy of Science, USA 96: 12923-12928.
- [77] Datta SC, Datta B (2018) Improved midday meal by using cowpea as eco-friendly crop controlling root-knot forming global green, growth and green economy. Journal of Recent Science (In Press). ISBN: 978-93-86675-21-7 and ISSN: 2277-2502.
- [78] Osbourn AE, Qi X, Townsend B, Qin B (2003) Secondary metabolism and plant defence. New Phytologist 159: 101-108.
- [79] Sasser JN, Freckman DW (1986) Proceedings of 25th Annual Meeting Society of Nematologists, Orlando, Florida 86: 32.
- [80] Zarter CR, Demmig-Adams B, Ebbert V, Adamska I, Adams WW III (2006) Photosynthetic capacity and light harvesting efficiency during the winter-to-spring transition in subalpine conifers. New Phytologist 172: 283-292

- [81] Sarah C. P. Williams (2015) Humans may harbor more than 100 genes from other organisms. *Science*, Mar.12, 2015, 12:00 PM, Posted in: Biology doi:10.1126/science. aab0307.
- [82] Zhou P, et al. (2020) X A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature* 579: 270–273. doi:10.1038/s41586-020-2012-7 Medline
- [83] Wu F, et al. (2020) A new coronavirus associated with human respiratory disease in China. *Nature* Medline 579: 265–269. doi:10.1038/s41586-020-2008-3
- [84] Lu R, et al. (2020) Genomic characterisation and epidemiology of 2019 novel coronavirus: Implications for virus origins and receptor binding. *Lancet* Medline 395: 565–574. doi:10.1016/S0140-6736(20)30251-8.
- [85] Appels R, Nystrom J, Webster H, Keeble-Gagnere G (2015) Discoveries and advances in plant and animal genomics. *Funct Integr Genomics* 15: 121–129. DOI 10.1007/s10142-015-0434-3.
- [86] Science Daily (2016) Our complicated relationship with viruses. *Science News*, November 28, 2016 NIH, National Institute of General Medical Sciences (NIGMS). <www.sciencedaily.com/releases/2016/11/161128151050.htm>.
- [87] On Biology (2019) The viral content of human genomes is more variable than we thought. Rebecca Pearce, Journal Development Manager at BMC, 25 Jan 2019, Blog Network.
- [88] Callif BL (2020) The Human Genome Is Full of Viruses. Medium, Medical Myths and Models.
- [89] Zhang LK, et al. (2020) Structure-based design of antiviral drug candidates targeting the SARS-CoV-2 main protease. Cite as: W. Dai et al., *Science* 10.1126/science. abb4489. <http://science.sciencemag.org/content/early/2020/04/21/science.abb4489>.
- [90] The Gene (2020) The COVID-19 Disease and Our Genes. Ken Burns, A special post from guest writer Joshua Speiser April 7, 2020.
- [91] Gómez DM, Lone YC, Salazar LM, Trojan J (2019) Antimicrobial peptides, novel solution for the treatment of precancerous disease acne - A review. *Trends in Medicine* 19: 1-6. doi: 10.15761/TiM.1000210.
- [92] Aghabeigi S, Ranjbar M, Tahanian F, Hezarjaribi1A (2019) A case report of a congenital immune deficiency disease –WHIM syndrome. *Trends in Medicine* 19: 1-3. doi: 10.15761/TiM.1000214.
- [93] Rangra NK, Samanta S, Pradhan KK (2019) A comprehensive review on phytopharmacological investigations of *Acacia auriculiformis* A.Cunn. ex Benth. *Asian Pacific Journal of Tropical Biomedicine* 9(1): 1-11. doi: 10.4103/2221-1691.250263.
- [94] Mahato SB (1996) Saponins with antifilarial activity from *Acacia auriculiformis*. In: Waller GR, Yamasaki K (eds). *Saponins used in traditional and modern medicine*. New York, USA: Springer 1996, p. 173-184.
- [95] Kabir SN, Ray HN, Pal BC, Mitra D (2014) Pharmaceutical composition having virucidal and spermicidal activity. US8729034 (Patent) 2014.
- [96] Said N (2020) Coronavirus COVID-19: Available Free Literature Provided by Various Companies, Journals and Organizations around the World. *Ongoing Chemical Research* 5(1): 7-13, Document ID: 2020JOCR37, doi:10.5281/zenodo.3722904.
- [97] News Drug Target Review's (2020) Coronavirus update: recent developments in vaccine Research. Drug Target Review's round-up of the latest developments in 2019 novel coronavirus (COVID-19 or SARS-CoV-2) therapeutics and vaccines 27th February 2020.
- [98] Sweeney C (2020) Human Immunomics Initiative will decode immune system, speed new vaccines. Harvard T.H. Chan School of Public Health News, April 14, 2020, Copyright © 2020 The President and Fellows of Harvard College csweeney@hsph.harvard.edu, 617.549.2638. <https://www.hsph.harvard.edu>.
- [99] WHO (2020) Vaccine-preventable diseases and vaccines. International travel and health. Chapter 6: 1-61, See country list updated yearly on WHO's ITH web page at: <http://www.who.int/ith/en/> http://www.who.int/immunization_standards/vaccine_quality/PQ_vaccine_list_en/en/.
- [100] Bougrine R, Hdidou Y, Aissaoui H, Elouafi N, Ismaili N (2019) Emergency stay triggered Tako-Tsubo syndrome: A case report and review of the literature. *Glob J Medical Clin Case Rep* 6(2): 035-038. DOI: <https://dx.doi.org/10.17352/2455-5282.000077>.
- [101] Hoffmann M, Kleine-Weber H, Schroeder S, et al. (2020) SARS-CoV-2 cell entry depends on ACE2 and TMPRSS2 and is blocked by a clinically proven protease inhibitor. *Cell* 181(2): 271-280.
- [102] Soler MJ, Barrios C, Oliva R, Batlle D (2008) Pharmacologic modulation of ACE2 expression. *Curr Hypertens* 10: 410-4.

- [103] John AJ, Julie RI, Beth HM, D'Agostino BR, Harrington PD (2020) Inhibitors of the Renin–Angiotensin–Aldosterone System and Covid-19. *The new England Journal of Medicine*. Copyright © 2020 Massachusetts Medical Society. This editorial was published on May 1, 2020, at NEJM.org.
- [104] Nandy B, Roy S, Bhattacharya S, SinhaBabu SP (2004) Free Radicals Mediated Membrane Damage by the Saponins Acaciaside A and Acaciaside B. *Phytotherapy Research* 18(3): 191-4. DOI: 10.1002/ptr.1387.
- [105] Sean Fleming (2020) A chemistry professor explains: why soap is so good at killing COVID-19. *World Economic Forum*. Senior Writer, Formative Content 12th March 2020.
- [106] Barreiro P, Duro RJ (2020) From Environmental Robots to Cyber Creatures: A Liberal Propection on the Future Agroecological Systems. *Advances in Agriculture, Horticulture and Entomology* 2020(02): 1-12. AAHE-110. www.kosmospublishers.com.
- [107] Crombie L, Crombie WML, Whiting DA (1986) Structure of the oat root resistance factors to take –all disease, avenacins A-1, A-2, B-1 and B-2 and their companion substances. *Journal of the Chemical Society Perkin Transactions 1*: 1917-1922.
- [108] Datta SC (2019d) Enriched School Health for The Effective Healthcare Bio-Activity of Barn Owls. *Research & Review of Health Care Open Access Journal* 3(3): 269-275. RRHOAJ.MS.ID.000164. DOI: 10.32474.RRHOAJ.2019.03.000164.
- [109] Datta SC (2019e) Enriched School Environment for the Effective Bio-Activity of Barn Owls. *International journal of Horticulture, Agriculture and Food science (IJHAF)* 3(3):119-126, ISSN: 2456-8635. <https://dx.doi.org/10.22161/ijhaf.3.3.2>.
- [110] The Science Advisory Board.Net (2020) Fighting SARS-CoV-2 at the bench? Express Cells has your back. *Letter Science Advisory Board.Net* on Fri, 24 Apr 2020 18:30:49. <letters@scienceboard.net>
- [111] Dutta PK (2020) Covid Toes among kids: New symptom of novel coronavirus infection. *News India Today*, 24th April 2020, New Delhi.
- [112] Rajput H (2012) Homeopathic Prophylaxis: Just Homeopathic Vaccination or More. *J Homeop Ayurv Med* 1: 105. doi:10.4172/2167-1206.1000e105.
- [113] Abdelrahman Mohamed Yehia TY, El-Ashry S, El-Batoty K, El-Hady S (2019) Efficiency of Triple Antibiotic Mixture and Propolis as Intracanal Medication in Revascularization process in immature apex: A clinical study. *Glob J Medical Clin Case Rep* 6(2): 019-025. <http://doi.org/10.17352/2455-5282.000073>.
- [114] NIH (2017) Clinical Alerts and Advisories /Disclaimer. U.S. National Library of Medicine, ClinicalTrials.gov. This page last reviewed in September 2017. <https://www.nih.gov/coronavirus> and <https://www.coronavirus.gov>.
- [115] Werner K, Werner K, Risko N, Burkholder T, Munge K, Wallis L, Reynolds T (2020) Cost–effectiveness of emergency care interventions in low- and middle-income countries: a systematic review. *Bull World Health Organ* 98: 341–352. <http://dx.doi.org/10.2471/BLT.19.241158>.
- [116] The Science Advisory Board.Net (2020b) Bulk Antibody Production to Support COVID-19 Research & More. Are You Involved in COVID-19 (SARS-CoV-2) Research? Let's Work Together. *Letter Science Advisory Board.Net* on Mon, 04 May 2020. <letters@scienceboard.net>
- [117] BioSpectrum News (2020) Homeopathy in managing viral infections like COVID-19. 10 April 2020.
- [118] Sukul NC, Sukul A (2005) High Dilution Effects: Physical and Biochemical Basis. Authors Nirmal C. Sukul, Anirban Sukul Copyright 2005 Publisher Springer Netherlands Copyright Holder, Springer Science & Business Media B.V. eBook ISBN 978-1-4020-2156-5 DOI 10.1007/1-4020-2156-9, Hardcover ISBN 978-1-4020-2155-8 Softcover ISBN 978-90-481-6601-5 Edition Number 1 Number of Pages XII, 130.
- [119] Mahata CR (2017) Avogadro Limit Washed out by Nano-Associates of Water which Continue as Information Carriers in Serial Dilutions and End up with Generalized Concept of Medicines. *International Journal of Complementary & Alternative Medicine* 9(4): 00305. DOI: 10.15406/ijcam.2017.09.00305.
- [120] THE WEEK MAGAZINE, JOURNALISM WITH A HUMAN TOUCH, (2020) Scientists in Israel, Netherlands claim progress in COVID-19 antibody trials 'Such a neutralising antibody has potential to alter the course of infection'. *Web Desk*, May 06, 2020.
- [121] E TIMES OF INDIA NEWS (2020) Italy claims to develop first COVID-19 vaccine: Here is the current status of all the potential coronavirus vaccines. TIMESOFINDIA.COM, Health & Fitness, Last updated on - May 6, 2020, 16:43 IST

- [122] Roy S. Locust attack: A joint fight by India and Pakistan, over the years. The Indian Express, New Delhi, Updated: May 29, 2020.
- [123] Onyema EM, Eucheria NC, Obafemi FA, Sen S, Atonye FG, Sharma A, et al. (2020) Impact of Coronavirus Pandemic on Education. *Journal of Education and Practice* 11(13):1-21. Doi: 10.7176/JEP/11-13-12.
- [124] Datta SC (2020b) Discovery of COVID-19 Vaccine by Using Acaciades as a Phytomedicine Improving Science and Technology Communication Applications- An Ideas. *Open Access Journal of Biogeneric Science and Research* 2(1): 1-30. doi:10.46718/JBGSR.2020.01.000032.
- [125] Datta SC (2020c) Improved Science and Technology Communications: Barn Owl Act As Social Vaccine Against COVID-19. *International Journal of Latest Research in Science and Technology* 9(3):6-13. https://www.mnkjournals.com/journal/ijlrst/Article.php?paper_id=10994.
- [126] Datta SC (2020d) Okra Maybe Potential Cost-Effective Personalized-Biomedicines Social-Vaccine against COVID-19: Improved Immunity Food-Security Green-Economy Science-and-Technology-Communication Applications. *Innovative Journal of Medical Sciences* 4(2): 5-20. <http://ijms.co.in/index.php/ijms/article/view/101>.
- [127] Datta SC (2020e) Potential Policy-Developed Global-COVID-19-Vaccine: Enriched Medical Sciences and Technology Green-Socio-Economy. *Cross Current International Journal of Medical and Biosciences* 2(10): 1-12. doi:10.36344/ccijmb.2020.v02i10.001.
- [128] Datta SC (2020f) Intercropped Cowpea Maybe Use as Biomedicine Improved Immunity against COVID-19: Enriching Science and Technology Communication Applications Food Security Economy. *Diagnosis and Therapies Complementary and Traditional Medicine* 2020(1): 35-48. doi:10.33513/DTCT/2001-07.
- [129] Datta SC (2020g) Improved midday meal by using cowpea as eco-friendly crop controlling root-knot forming global, green, growth and green economy. *International Journal of Advanced Research* (Accepted).
- [130] Datta SC (2020h) Biomedicines-Cina against COVID-19: Controlled Plant Diseases Enriched Science and Technology Communication Green Economy. *The International Journal of Research-GRANTHAALAYAH*.8(9):234-255. <https://doi.org/10.29121/granthaalayah.v8.i9.2020.1537>.
- [131] Datta SC (2020i) NGO Act as Potential-Policy-Developer Social-Vaccine-COVID-19 Epidemic-Model until Discovery-of-Medical-Vaccine: Achieved Green-Socio-Economic Welfare Science Technology Innovations. *Arch Community Med Public Health* 6(2): 225-232. <https://dx.doi.org/10.17352/2455-5479.000111>.
- [132] Datta SC (2020j) Acacia auriculiformis-Extract Synthesis PR-Proteins Developed Potential Biomedicines-Vaccine against Okra-Diseases and COVID-19: Improved Science Technology Communications Bio-Economy Applications. 8(10): 249-270. <https://doi.org/10.29121/granthaalayah.v8.i10.2020.1893>.
- [133] Datta SC (2020k) Weeds-Vegetables and Fruits Act as Potential Biomedicines against COVID-19: Enriched Agriculture Biodiversity Socio-Economy Science Technology Communications by Controlling Plants Diseases. *Journal of Experimental Biology and Agricultural Sciences*, October - 2020; Volume – 8(Spl-1- SARS-CoV-2): S139-S157. doi:10.18006/2020.8(Spl-1-SARS-CoV-2). S139.S157.
- [134] Datta SC (2020l) Biomedicines-Aakashmini Cost-Effective COVID-19 vaccine: Reduced Plant-Diseases Enriched Science Technology Communications Socio-Economy Bio-Applications. *Global Journal of Bioscience and biotechnology Socio-Economy* 9(4): October-2020 (Accepted).
- [135] Datta SC (2020m) Biological and BioSystems Engineering Barn Owl Controlled COVID-19: Engineering Bio-mechanical Biomedical Science Technology Communication Enriched Agriculture Environment. *International Journal of Engineering and Science Invention*. Manuscript Id: IB910037, ISSN (Online): 2319 – 6734, ISSN (Print): 2319 – 6726 (Accepted).
- [136] Datta SC (2020n) Artificial-Nest Rainwater-Harvesting with Fishery and Floating-or-Rooftop-Gardening Act as 21st Century Civil-Engineering COVID-19 Epidemic-Model: Improved Biodiversity Agriculture Socio-Economic Environmental-Sciences Technology-Communication. *Journal of Civil Engineering and Environmental Sciences*. 6(2): 022-036. <https://dx.doi.org/10.17352/2455-488X.000037> (Under the Review Process).
- [137] Press WH, Levin RC (2020) Modeling, post COVID-19. *Science* 27 Nov 2020; 370(6520): 1015. doi:10.1126/science.abf7914.
- [138] Wadman M (2020) Public needs to prep for vaccine side effects. *Science* 27 Nov 2020; 370(6520): 1022. doi:10.1126/science.370.6520.1022.