SOCIETY FOR ETHNOPHARMACOLOGY, INDIA
(SFE - INDIA)
NEWS LETTER, April-June 2020
Volume 2020/2 No. 21

Special issue on COVID-19

Contents

Editorial board

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Editorial

With much grief and agony I am writing this editorial when 6057853 persons are infected by COVID and 371166 persons are dead globally. Till date we are fighting with this situation when there is no proven arms with us. Several researches are going on by several groups to discover vaccine or curative drugs. In the mean time two drugs have got Emergency Use Authorization (UEA) by two concerned authorities with some limitations, which are- Remdesivir (USA) and Favipiravir (Japan).

The Ministry of AYUSH, Govt. Of India has issued advisory on COVID-19, which is reproduced in this issue. Apart from this Government of India has appointed a task force to conduct research on a few selected promising Ayurvedic drugs and plants. Hope a solution will evolve soon to fight with this global pandemic.

Dr. Subhash C. Mandal, Ph.D. - Editor

From Secretary's desk

Dear Friends,

I hope you've been well since we last wrote and that you're safe and healthy during this difficult time along with your family.

I must thank you all for your support and encouragements to conduct the webinar series on "Reimagine Ethnopharmacology". Success of this webinar series is our collective effort, which is helping thousands of young minds to witness the digitization of traditional approaches in ethnopharmacology.

On behalf of the SFE-India, I would like to express our sincere thanks to the members of the executive and editorial board of the newsletter, coordinators for the local chapters and all SFE-India members for their contributions for the society. Stay safe, stay healthy and stay tuned to explore the opportunities.

Prof. Pulok K. Mukherjee, FWAST, FRSC, FNASc
Secretary, SFE - India

Interview of Dr. C.K. Katiyar

Dr. Subhash C. Mandal, Editor, SFE News Letter recently interviewed Dr. Katiyar to gain his valuable insights on herbal medicine. Their conversation is presented below.

Dr. C. K. Katiyar
CEO
Health Care (Technical)
Emami Ltd. India

Q. Kindly elaborate on the future of herbal medicine.

A. As per a report, Global Herbal Medicine market is expected to reach USD 129 billion by 2023. Herbal Pharmaceutical segments market was USD 50 billion in 2017 and led the segment. In case of India this market is approximately USD 4.4 billion or was approximately Rs.30,000 crores by end of 2018 and expected to grow by 16% until 2025, as per the study of Confederation of Indian

Industry (CII Report). Therefore, the future of herbal medicines is bright though full of challenges also, especially on the front of maintaining the quality of the products.

Q. What may be the opportunities and threats in the field of herbal medicine research?

A. Typically the opportunities lie in the field of un-met medical needs specially Life Style Disorders in addition to typical therapeutic preference areas like- Liver care, Women care, Skin care etc. The threats to the segments may actually come from within rather than the outside the segment. Making tall claims through the advertisements may push Government to introduce more stringent regulations for licensing and generating efficacy data. Sporadic cases of adverse effects may lead to additional regulatory requirement of generation of more elaborated safety data on the products as well.

Q. What are the key focus areas in the development of natural product medicine?

A. Life Style, stress related, digestive and sexual health related disorders may form the key focus or for development of natural products. Unfortunately, neglected disease areas may still remain neglected.

Q. Your suggestions for the researchers of natural product medicine.

A. The suggestion for the researchers would be to go deeper into Phytochemistry and create linkage of chemical compound from plants with their Biological activity. Isolated efforts either in Phytochemistry or in biological efficacy may not lead to desired results in future. Marriage of Chemistry and Biology, therefore, is of paramount importance. It has been observed that focus of researchers is reducing drastically on taxonomy which is key science for identification of herbs. There is need to bring it back to the focus of research. While DNA finger print can certainly play a role but it is of no value when it comes to distinguish various parts of the plants which might be used as adulterants. Taxonomy is the only solution in such cases. Therefore, focus should be on taxonomy, Phytochemistry and Pharmacological aspects of research on herbal drugs.

Extract of lectures

Bioresources of northeast India: opportunity to create value

Dr. C. Vanlalramsanga, IES
Secretary, Planning & Programme Implementation (Science & Technology) Department
Govt. of Mizoram. India

The northeastern region (NER) of India comprising the eight sister states Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura is endowed with rich forest cover that lies under the Himalayan and Indo-Burma biodiversity hotspots of the world. Whilst Arunachal Pradesh and Sikkim are under the Eastern Himalayan Biodiversity Hotspots, the remaining states fall under the Indo-Burma Biodiversity Hotspot. Each state in the NER is characterised by abundant bioresources with unique attributes. Although exploration studies and surveys have been made on the bioresources and

biodiversity of NER, bioprospecting of these resources through scientific means is very limited. Main highlights of NER bioresources for bioprospecting and value addition include the different species of medicinal and aromatic plants, ornamental plants, timber yielding plants, bamboo, food crops and fruits unique to the region. Employing a systematic method to carefully evaluate the most potential bioresources for further scientific studies will set the platform for product development and socio-economic development of the region.

Cyberecoethnopharmacolomics

Geoffrey A. Cordell, Ph.D.
Professor Emeritus, University of Illinois
Adjunct Professor, University of Florida, and President, Natural Products Inc.
United States

In this lecture, aspects of a newly coined term, cyberecoethnopharmacolomics, will be presented. It is a companion to “ecopharmacognosy”, and describes an integrated approach to enhancing the translation of the indigenous use of natural resources for the benefit of patients, through science-based research, whether as products based on traditional medicines or those (or their semisynthetic derivatives) which are fully approved as drugs. For ethnopharmacology to participate effectively in the development of health systems, the collaborative involvement of a wide range of basic, clinical, and social sciences and technologies is necessary. Explicating the component syllables of the word reveals that intellectual and functional diversity. “Cyber-“ indicates the need for information systems in planning the research endeavor based on prior accumulated data, the use of internet-based systems in the field for plant identification and assessment, the storage and analysis of many types of research data, and the presentation of structural and other inferences from spectroscopic and other resources. It also reflects that, for almost the whole world, all the knowledge they will need is in their hand that smart device to which we are attached, and which allows us access to immense resources in an instant. “Eco-“indicates the importance of thinking and acting in a sustainable manner with respect to the plant material (e.g. bark vs. leaves) from the earliest stages of the research planning, and in developing sustainable laboratory practices. It also reflects a poorly researched aspect of ethnopharmacology, the impact of climate change on medicinal and aromatic plants, their distribution, and their metabolite profile. “Ethno-“demonstrates that there is fundamental respect for knowledge concerning the historical and contemporary use of plants by various cultures and societies, and a commitment that the garnered information is compiled, analyzed, and prioritized. “Pharmacol-“reflects that the material(s) under study will be assessed in a manner that is biologically relevant to the reported use(s). It also indicates that in the discovery and development stages what is being tested has been analyzed or profiled. This is necessary to establish reproducibility, and a relationship developed between what is developed for in vitro testing to what is tested subsequently in vivo. It also recognizes that plants are harboring a wide range of microbial species producing a corresponding range of active metabolites. “Omics” refers to five different facets of natural product development from plants. There is taxonomics, the unequivocal

identification of the plant. There is genomics, illustrating, at the DNA level, what metabolites might be present based on identified biosynthetic pathways. There is the metabolomics aspect, the determination of compound diversity in a plant at a particular time, the correlation with reproducible biological activity, and the standardization and quality control of a preparation to provide consistency for the patient in a marketed product. Agronomics indicates the importance of a transition to sustainability, from a wild-crafted to a cultivated material for long-term development. Economics is another fundamental aspect of the journey to a patient-centered product. Can the material be developed for the manufacture and marketing stages to a product which is cost- appropriate for industry, and is available and affordable for the patient? These are the principles behind the practice of QSECA (quality, safety, efficacy, consistency, and accessibility) that is the basis of patient confidence in any ethnopharmacologically-derived, plant-based product.

Herbs for boosting immune resistance

Dr. Roy Upton
President, American Herbal Pharmacopoeia,
United States

COVID 19 has shown the world very clearly that people need guidance on all aspects of health care that can improve their chances for resistance against pathogens, minimize their chances for progressing to more severe stages of disease, and facilitating recovery. Botanical immune modulators have a unique role to play in both prevention and treatment. This presentation will discuss some of the primary botanicals immune modulators used in the management of COVID and the earlier SARS virus, and additionally present possibilities for using Ayurvedic botanicals similarly.

Current situation of COVID-19 infection: long term global societal impacts

Professor Debi P. Sarkar
Former Dean/Head, JC Bose National Fellow
Former Director, IISER Mohali

COVID-19 appearing as till now since Dec. 2019 a most poignant threat to our society both national and international. So much talked and hard (heard) about it and the current situation is a bit under control with outstanding Indian Government support and efforts and the citizens of the world, we need

to think seriously about the future repercussion and prevention to be adopted immediately and as the need arises.

Despite severe suffering of mankind, we still harbor a strong hope to overcome this danger and appropriate measures are being taken in a lightning speed and in a knee jerk fashion. Therefore, I wish to discuss the following given a chance:

1. Steps to be initiated with appropriate permission/guidelines to bolster more public awareness from pillars to post of our huge nation to begin with.
2. Severe mental prevention measures with speeding up of counselling service (with help pf (of) Psychologists and newly trained individuals) to our primary school children to all individuals of our society.
3. Strict guidelines are circulated by our honorable ministries concerned but to sensitize people from all walks of life so that they are more strictly implemented in the ground level.
4. To remember always that our guardians/parents and sensitive family members to bear full responsibilities without any failure as a part of duties and otherwise to propagate above issues in all respects.

Lectures text

The social impact of Covid-19: A european perspective

Dr. Marco Leonti
Professor
Università di Cagliari, Cagliari (CA), Italy

Hello altogether,

I am not a virologist or epidemiologist and not an expert about covid-19. I am an ethnopharmacologist under lockdown and had some spare time in past 2 month for informing myself about Covid-19 and how it is handled by cross-reading online newspapers such as the Guardian from the UK, Der Spiegel from Germany, The New York Times from the USA, La Repubblica from Italy and Die Neue Zürcher Zeitung from Switzerland amongst others, but I also watched youtube footages and broadcasts often trying to disseminate conspiracy theories about the severity and origin of Covid-19 and of course I also read scientific papers about the origin of Sars-Cov-2 and specifically an interview given by the Italian parliamentarian and scientists Elena Cattaneo.

Three hypotheses about the origin of Sars-Cov-2 exist:

1. The virus has been engineered and escaped from a lab
2. The virus is of natural origin had been sampled and escaped from a lab

3. The virus is of natural origin and spilled over from an animal reservoir

The widely read Nature Med. review paper about the "The proximal origin of SARS-CoV-2" reads in the introduction that: "Our analyses clearly show that SARS-CoV-2 is not a laboratory construct or a purposefully manipulated virus" while in the conclusions it reads that "More scientific data could swing the balance of evidence to favour one hypothesis over another" leaving the reader a bit puzzled. There are also various papers published in 'The Cell' about this topic but are hard to understand for non-experts. The best site I came across explaining in details how SARS-CoV-2 could have evolved in nature so that it becomes accessible also to non-specialists is that from the Benhur Lee Lab from the School of Medicine at Mount Sinai NY. It so far contains the best explanation how the polybasic cleavage site which makes SARS-Cov-2 unique among the known Corona viruses and at the same time is responsible for its high virulence could have been 'inserted' by natural events. https://leelabvirus.host/covid19/origins-part3. It is important to scrutinize the existing theories and debunk those that have no scientific bases in order to reduce the widespread confusion, resentments and stigmatizations: Asian looking people were attacked and insulted in the streets of Italy, Germany and the UK and probably in other parts of Europe already just before the shutdown took place. What to me seemed to be an announced tragedy and has not led Europe to learn from the Chinese experience and prepare for the worst. It appeared that Europe was stupefied and not without a certain degree of arrogance and ignorance looked over to China convinced that tits own health care systems would be superior and that Covid-19 cases would be detected early on. But reality was that atypical cases of pneumonia surfacing in northern Italy in Mid-January were not checked for SARS-CoV-2, nor traced back or followed up. Patients were simply asked whether they had been to China recently. It was thought that SARS-CoV-2 could not yet have arrived and this misunderstanding was setting the ground for the epidemic to prosper.

While Taiwan, Singapore and South-Korea had gathered experience with the SARS epidemic in 2002/03 and prepared accordingly for future epidemics by installing a screening and tracing system, many European countries have reduced their investments into the public health care system in the past decades in the attempt to save money leaving the responsibility to the private sector. There is also a prevalent cultural misunderstanding between European and Asian people and this can also be seen in the handling of this pandemic: When Europeans see Asian people wearing facemasks they automatically think that those wearing masks fear getting infected without even contemplating the possibility that those who wear mask act thoughtfully trying not to infect others. Warnings about the possible emergence of epidemics voiced by many epidemiologists were ignored in Europe and the US. As the last big epidemic in Europe was the Spanish flu from 1918, which however originated in the US and not in Spain, dates too far back and is therefore not remembered by the collective memory. I think that it is also rather doubtful whether preventive measures such as a lockdown without an ongoing emergency would have been enforceable and accepted in Europe as the political oppositions would have immediately exploited the uncertainty of the situation and made political pressure in order to increase their political consensus.

This is actually what was happening in Italy at the beginning of the pandemic. But with the increasing emergency the visibility of the political opposition parties in the media became less and less. Moreover, in democratic political systems like those installed in the western world with their often federalistic structure leaving decision to federal states and with people being used to a high degree of liberty, individuality and self-determination a lock down is far more difficult to enforce with respect to other political systems. The pervert bi-polar political system with a dominant right and left-wing party adopted in the US and many European democracies, which is not based on bipartisan consensus, ads to the complexity of the situation and the challenge of finding the right balance between economic stability and preventive measures. Generally, emergencies like this pandemic tend to consolidate the political parties at command unless they act in such a dilettantish and amateurish way as the US or the Brazilian government who tried and still try their best to ignore the advices of scientific experts. An exception is the UK government, which notwithstanding the disastrous management, soaring infection and death rates can count with the consensus of their people. But it is actually the momentum of science. Seldom before have politicians and governments coordinated their actions and decision in a more proximate consultation with scientific experts. Suddenly the opinions of experts such as virologists and epidemiologists are the cornerstones of political decision making. This is not only because politicians are by nature ignorant about scientific issues but also because they like to see others to be made responsible for unpopular measures they feel pressed to sustain and adopt in order that the voters will not blame them but the scientist. Some experts such as Anthony Fauci, chief of the National Institute of Allergy and Infectious Diseases of the USA achieved cult status but finds himself repeatedly in the uncomfortable situation having to correct publicly the humbug voiced by the president. Therefore, he received death threats by Trump fans and had to beef up personal security. Another example is the fate of the ex health minister of Brazil. Luiz Henrique Mandetta, who eclipsed the popularity of the populist and right-wing president and therefore got sacked. But generally, in the current situation politicians in Europe and elsewhere listen to a few virologists and epidemiologists but pretend immediate and irrefutable certainty from scientists about the measures to be adopted in this pandemic caused by a virus that was unknown to science until recently. The scientific community is being criticized by politicians for being vague and slow. This demonstrates the lack of understanding of the scientific methodology and approach at large.

Science studies the unknown narrowing the margin of uncertainty trying to provide certainties wherever it is possible, also with SARS-Cov-2 and Covid-19. The genetic sequence of the virus is known since the 10th of January and the angiotensin-converting enzyme 2 has been identified as the entry receptor soon thereafter. But for answering many other questions science needs more time such as for answering the question if we will ever have a vaccine and if when? Which will be the pharmacologic therapy? And whether there a possibility for reinfection? Altogether this leads to the paradoxical situation that while the scientific community has come to a consensus on many issues since quite a while and tries to influence political decision making like the repeated plea for introducing a mandatory regulation of vaccination, the pressing need for taking adequate measures against climate change, the

need for an evidence base for all medicines and informing about the non-existent power of homeopathy beyond the placebo effect, all these pleas have been largely ignored by politics.

Anti-vaxxers are sitting in the Italian parliament, homeopathic products are commercialized at high prices without having to provide an evidence-base, Italy has one of the most severe restriction on animal testing in Europe hampering pharmacologic research and even has to pay infringement fines to the European Union because the Italian restrictions violate the EU law. Still, all of a sudden even politicians belonging to political parties with a no-vaxx agenda agree on the need of having an anti-Covid vaccination as if the only good vaccine is the one we don't have. Similarly, in regions of Italy and Europe where Covid led to only few victims people are retrospectively questioning the need for a lockdown as they fail to recognise the causal relationship. There is generally a huge confusion and insecurity among the population, which also leads to acts of defiance. The governments clearly do not always do their best to prevent confusions among the population as many decisions are erratic and not based on a scientific rationale. The Italian government has allowed from the 18th May onwards the churches to attend masses and religious gatherings and hairdressers to reopen while Universities remain shut-down for the time being indulging in self-castration. This conveys the message that has perpetually been filtered down to the populations of Italy and elsewhere over the past 2000 years, namely that people should better continue to believe instead of starting to know.

As unemployment rises globally due to the resulting economic crisis the interruption of production chains might lead to an effect of de-globalization with the possibility that entire production-chains will be shifted towards a more local assemblage. De-globalization and mass-unemployment would possibly reinforce populist and nationalist governments, which would be detrimental for fighting global problems like pandemics and climate change. The current situation is an opportunity for science and scientists to show the importance of science and its methodology to a wider fringe of the society, which appears, however, to be a tightrope walks as Fauci's experience shows. Above all should scientific expert committees not only be sought after by politicians when an emergency is experienced in its acutest form. Science should demand a permanent role in political decision making in general also when more chronic problems need to be tackled.

The European Centre for Disease Prevention and Control will also have to overthink their role and coordination with member states, while member states will have to think over whether the final decision for a lockdown should be left to the federal states or whether it would be better to decide centrally in order reduce confusion and safe valuable time during emergencies. And by the way, in my opinion the terminology 'social distancing' is not adequate and confusing as what we are encouraged to do and doing right now is physical distancing and not social distancing that's why we call this kind of media we are interacting though 'social media'. More than about the social impact of Covid-19 this is actually a plea for science to take more control over politics. Thanks for reading and stay safe!

Role of veterinarian in mitigating Covid19

Prof. Chandana Choudhury Barua
College of Veterinary Science
Assam, India

Although there are many controversies, whether Covid can be transmitted from human to animals or vice versa, till now, no substantial data or research is able to prove that. May be in near future we will come to know whether human being poses a threat to animals as recently tigers and cats were found to be infected from their handlers or owners. But it is too early to interpret. Every day, we are flooded with so many news and research findings (fake or real), that it becomes difficult for us to presume or differentiate between true or fake news.

Till date, there is no report that companion animals spread infection to human. So far, there is no information that cat or dog or companion animals spread the disease to human. So one should not abandon their pets. The message should go loud and clear to the masses.

There is already huge loss in poultry industry, as one can see the truck loads of fertile eggs are abandoned on the highway and the newly hatched chicks were seen in thousands on road. Since the outbreak of the disease, most of the people stopped eating non vegetarian food for reasons known to them. They should be informed that to boost their immunity balanced food packed with protein, vitamins should be taken adequately. Vegetarian food is equally nutritive provided they take protein from vegetarian sources.

Here comes the role of public health expert and veterinarians who can join together in one health approach to share information and conduct risk assessment when a Covid patient reports a disease, being in contact with companion animals. If it is found that the animal is in contact with his owner, the RTPCR should be done with saliva/ fecal / nasal/ rectal samples. And although there is no evidence of spread from animal to animal, as of now, once an animal shows symptoms of covid, it should be isolated from other animals.

Although there is uncertainty about the origin of covid virus whether it is from the wet market of Wuhan, where bats are sold or not, but whether it is wet or dry market, general hygienic measures should be followed by customers. Once they come in contact with animal products in the market, they should wash their hands with soap and water, and should not touch mouth or eye or nose. They should not touch stray animals on the roads or their waste or fluid or touch the surface of the shop or market.

Raw meat, milk should not be handled to prevent contamination with uncooked food. Meat from healthy livestock prepared hygienically is always safe for consumption. Till date restrictions on animal or animal products are not recommended. As a veterinarian they should remain informed and be in constant touch with public health authorities and those involved with wild life. The Covid outbreak should not have negative impact on domestic or wild animals that may adversely affect their welfare and health.

Now with the emergence of swine fever in north east where pork market is one of the profitable livelihood of many people, both poultry and pig industry has incurred huge loss, because of these threat, the role

of veterinarian at this time is very important. In many countries, veterinary services are utilised for screening and testing of surveillance and diagnostic samples from humans.

The bottom lines are:

1. COVID is not spread by drinking milk, eating meat fish or eggs.
2. It is spread from one person to the other
3. It is safe to have milk, meat, eggs and fish as long as :
    a. You buy it from a known source
    b. Boil milk thoroughly before consuming
    c. Clean fish, chicken and meat and cook well before consuming
    d. Cook eggs before consuming

AYUSH advertisement for clinical research for Covid19

(To be published in the Extraordinary Gazette of India)

Ministry of AYUSH
Government of India

F.No. L.11011/8/2020/AS
Government of India
Ministry of AYUSH

Date: 21st April, 2020.
New Delhi

NOTIFICATION

No. L.11011/8/2020/AS: In the wake of COVID-19 caused by SARS CoV 2, there has been surge in proposals received by Ministry of AYUSH for claiming possible treatment of COVID19. At present, there is no approved treatment for COVID 19 infection. Indian Traditional Medicines have wide potential for usage in such conditions owing to their longstanding use in the community, huge number of ancient references and large number of publications in scientific journals on their phyto-chemical constituents, mode of action, clinical efficacy etc. At the same time, it is also essential to have scientific evidence on use of any Ayurveda, Unani, Siddha or Homeopathy formulation on prevention/ management of COVID 19. Therefore, it is felt necessary to make serious efforts for development of drugs based on any of AYUSH systems recognized under Drugs and Cosmetics Act, 1940.

2. There are no specific regulatory provisions in the Drugs & Cosmetics Rules 1945, for conduct of clinical trials of Ayurveda, Siddha, Unani and Homeopathy drugs. At the same time it is also necessary that the clinical data generated is scientifically valid and credible. In this context the Ministry has undertaken consultation with DCGI, CDSCO as well as other research experts.

3. In the above background and based on the consultation of CDSCO, the Ministry of AYUSH with the approval of Minister of State Independent Charge for AYUSH notifies that scientists, researchers, clinicians of any of recognized systems of medicine under IMCC Act, 1970, HCC Act 1973 and NMC Act 2019 (formerly IMC Act 1956) can undertake research on COVID19 through Ayurveda, Siddha, Unani and Homeopathy systems including prophylactic measures, intervention during the quarantine, asymptomatic and symptomatic cases of COVID -19, public health research, survey, lab based research etc. to generate evidence.

4. While undertaking research, it is mandatory for the organizations to comply with the following conditions:

i) The proposals should be approved by their scientific advisory bodies and Institutional Ethics Committees.
ii) If it is clinical trial, the project should be registered with CTRI.
iii) The sample size should be based on statistical justification.

iv) The Clinical research should be conducted as per AYUSH guidelines for Clinical Research or ICMR guidelines.

v) Compliance with relevant regulations for Bio-medical and Health Research.

vi) Compliance to Good Clinical Practice Guidelines.

vii) Compliance to National Ethical Guidelines for Bio-medical and Health Research on Human Participation published by ICMR.

viii) Compliance with any other relevant regulations in force.

ix) AYUSH registered practitioner/expert should be part of the study team at each site.

5. It would be mandatory to the institution/organization to appraise the Ministry of AYUSH, Govt. of India about the research developments as per research timeline and the outcome.

21/4

(P.N. Ranjit Kumar)
[Joint Secretary to the Government of India]

To,

The Manager,
Government of India Press,
New Delhi

AYUSH advisory regarding COVID19

सत्यमेव जयते

वैद्य राजेश कोटेचा
Vaidya Rajesh Kotecha

स्वच्छ भारत
एक कदम स्वच्छता की ओर

सचिव
भारत सरकार
आयुर्वेद, योग व प्राकृतिक चिकित्सा
यूनानी, सिद्ध, सोवा रिग्पा एवं होम्योपैथी (आयुष) मंत्रालय
आयुष भवन, 'बी' ब्लॉक, जी.पी.ओ. कॉम्प्लेक्स,
आई.एन.ए, नई दिल्ली–110023
SECRETARY
GOVERNMENT OF INDIA
MINISTRY OF AYURVEDA, YOGA & NATUROPATHY
UNANI, SIDDHA , SOWA-RIGPA AND HOMOEOPATHY (AYUSH)
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D.O. No. S. 16030/18/2019 -NAM
Dated: 06th March, 2020

As you are aware, incidences of Corona Virus (COVID-19) have been reported worldwide and 30 Positive cases of Corona Virus have also been reported in India till date. Even though there is no panic response warranted, AYUSH being one of the important Ministry equipped for providing appropriate response to the circumstances arose due to this public health challenge, it is worthwhile to associate with other Stake holders in eliciting AYUSH based public health response considering the strength and evidences of these systems. In the past also, interventions under AYUSH systems had been varyingly used for making an effective public health response in similar situations faced in many States/UTs.

Keeping in view, Ministry of AYUSH with the recommendations from Research Councils under its administrative control has come out with an advisory (Copy enclosed as **Annexure-I**) which may be communicated /implemented through AYUSH personnel and facilities as per the prevailing system of medicine in your State/UT.

These interventions from different AYUSH systems of medicine are supported with evidences for promotion of immunity and help in improving the respiratory symptoms in similar diseases. In this regard, a separate list of references is also enclosed at **Annexure-II** for your ready reference.

Therefore, I request you to do the needful for appropriate roll out of this strategy in consultation with other stake holder departments responsible for Public Health in your State/UT.

Yours sincerely,
-Sd/-
(Rajesh Kotecha)

Encl: as above

To,
Chief Secretaries of all States/UTs.

Copy to:

1) Principal Secretary AYUSH/Health of all States/UTs
2) Director/Commissioner/Mission Director (AYUSH) of all States/UTs.

(Rajesh Kotecha)

ANNEXURE-I

ADVISORY FROM MINISTRY OF AYUSH FOR MEETING THE CHALLENGE ARISING OUT OF SPREAD OF CORONA VIRUS (COVID-19) IN INDIA

Corona viruses (CoV) are a large family of viruses that cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). The new Corona virus disease (COVID-19) was first reported from Wuhan, China, on 31 December 2019. 72 countries reported COVID-19 incidence with 90,870 confirmed cases and 3112 deaths as per WHO factsheet as on 03.03.2020. As on 03.03.2020, 05 confirmed cases are reported in India from various parts.

Common signs of infection include fever, cough, myalgia, fatigue and breathing difficulties. In more severe cases, infection can cause pneumonia, severe acute respiratory syndrome, kidney failure and even death.

The function of the immune system is critical in the human response to infectious disease. Viral infections induce oxidative stress and cause damage to airway epithelial cells. A growing body of evidence identifies stress, nutrition and immunity as a cofactor in infectious disease susceptibility and outcomes. The mainstay in management of corona viral infections has been supportive care, nutrition and preventing further progression in the absence of any antiviral agent or vaccine.

During Ebola outbreak in 2014 expert group of WHO has recommended that "it is ethical to offer unproven interventions with as yet unknown efficacy and adverse effects, as potential treatment or prevention" keeping in view no vaccine or anti-virals were available.

Approach of AYUSH systems:

The holistic approach of AYUSH systems of medicine gives focus on prevention through lifestyle modification, dietary management, prophylactic interventions for improving the immunity and simple remedies based on presentations of the symptoms.

For instance, emphasis on avoidance of causative factors and enhancing the immunity against host of infections are characteristics of Ayurveda management. The preventive aspect of Homoeopathy is well known, and historically, Homoeopathy has reportedly been used for prevention during the epidemics of Cholera, Spanish Influenza, Yellow fever, Scarlet fever, Diphtheria, Typhoid etc. The genus epidemicus (GE) is the remedy found to be most effective for a particular epidemic once data have been gathered from several cases. It was reported that, during recent past GE had been used during various disease outbreak for preventing the spreading of diseases like Chikungunya, Dengue Fever, Japanese Encephalitis and Cholera with good results. As detail accounts of use of homoeopathy in control of epidemics are given in recent publications.

The AYUSH approach to manage the outbreak broadly comprise of:

i. Preventive and prophylactic
ii. Symptom management of COVID-19 like illnesses
iii. Add on Interventions to the conventional care

Based on potential & strength of AYUSH systems supported by evidences for promotion of immunity and help in improving the respiratory symptoms in similar diseases and as per the recommendations from the research councils under Ministry of AYUSH following system wise approach is recommended:

i. Preventive and prophylactic:

Ayurveda:

Samshamani Vati 500 mg. twice a day with warm water for 15 days. The medicine contains aqueous extract of *Tinospora cordifolia*.

Siddha:

Nilavembu Kudineer decoction 60 ml. twice a day for 14 days. The medicine contains aqueous extract of *Andrograhis paniculata* & others.

Unani:

Preparation of decoction by boiling Behidana (*Cydonia oblonga*) 3 gm, Unnab (*Zizyphus jujube)* 5 in number. Sapistan (Cordia myxa) 9 in number in water. (Boil these in 250 ml water- boil it till it remains half- filter it – keep in a glass bottle and use it lukewarm). The drugs used in the preparation of this decoction have been reported to have

Antioxidant activity, Immuno-modulatory, antiallergic, smooth muscle relaxant activity and Anti-influenza activity. This decoction may be taken twice a day for 14 days.

Homoeopathy:

Arsenicum album 30, daily once in empty stomach for three days. The dose should be repeated after one month by following the same schedule till Corona virus infections prevalent in the community.

In one of the studies Arsenic album as one of the constituents in a formulation affected HT29 cells and human macrophages. Also, it showed ↓NF-κB hyperactivity (reduced expression of reporter gene GFP in transfected HT29 cells), ↓TNF-α release in macrophages. More over Arsenic album is a common prescription in the cases of respiratory infections in day to day practice.

ii. Symptom management of COVID-19 like illnesses

Ayurveda

1. *AYUSH-64 : 02 tablets twice a day*
2. *Agasthya Hareetaki : 05 gm twice a day with warm water*
3. *Anuthaila/ Sesame oil 02 drops in each nostril daily in the morning*

Siddha

1. *Nilavembu Kudineer /Kaba Sura Kudineer – decoction 60ml twice a day*
2. *Adathodai Manapagu – Syrup 10 ml twice a day*

Homoeopathy

Various medicine which found to be effective in treating flu like illness *are Arsenicum album, Bryonia alba, Rhus toxico dendron, Belladonna Gelsemium Eupatorium perfoliatum.*

All these medicines should be taken in consultation with qualified physicians of respective AYUSH systems.

iii. Add on Interventions to the conventional care

Ayurveda

1. *AYUSH-64 : 02 tablets twice a day*

2. Agastya Hareetaki : 05 gm twice a day with warm water

Siddh

1. *Vishasura Kudineer : decoction 60ml twice a day*
2. *Kaba Sura Kudineer – decoction 60ml twice a day*

Homoeopathy

Medicine mentioned Symptom management of COVID-19 like illnesses" under subhead Homoeopathy can also be given as add on to the conventional care.

All these medicines should be taken in consultation with qualified physicians of respective AYUSH systems.

General preventive measures (already notified):

i. Observe good personal hygiene.
ii. Practice frequent hand washing with soap.
iii. Follow respiratory etiquettes - cover your mouth when coughing or sneezing.
iv. Avoid close contact with people who are unwell or showing symptoms of illness, such as cough, runny nose etc.
v. Avoid contact with live animals and consumption of raw/undercooked meats.
vi. Avoid travel to farms, live animal markets or where animals are slaughtered.
vii. Wear a mask if you have respiratory symptoms such as cough or runny nose.

In addition, the following AYUSH specific measures may be adopted:

The diet should be fresh, warm, easy to digest, containing whole cereals, seasonal vegetables etc. Frequent sipping of water boiled with Tulsi leaves, crushed ginger, and turmeric would be beneficial. Honey with a pinch of pepper powder is also beneficial in case cough. Cold, frozen and heavy foods may be best avoided. It is always beneficial to avoid direct exposure to cold breeze. Appropriate rest and timely sleep are advisable. The practice of Yogasana and Pranayama under the guidance of qualified Yoga instructor is recommended.

Common medicinal plants useful in similar symptoms are Tulsi (*Ocimum sanctum*), Guduchi (*Tinospora cordifolia*), Ginger (*Zingiber officinale*) and Turmeric (*Curcuma longa*)

ANNEXURE-II

References for Interventions of different AYUSH systems of medicines for promotion of immunity and help in improving the respiratory symptoms

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AYUSH order to stop misleading advertisements on Covid19

F. No. Z 25023 /09/2018-2020-DCC (AYUSH)

Government of India

Ministry of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH)

Dated: 1st April, 2020.

ORDER

Whereas in view of the emerging threat in the country due to COVID-19 outbreak, it is imperative to apply and implement various measures for maintaining public safety in all aspects and to control dissemination of misleading information about AYUSH drugs and services;

Whereas the Ministry of Home Affairs vide Order No. 40-3/2020-DM-II(A), dated 24th March, 2020 and the National Disaster Management Authority (NDMA) vide Order No. 1-29/2020-pp (Pt II) dated 24th March, 2020 have issued instructions to all Central and State/UT Government Authorities under the provisions of Disaster Management Act, 2005 to take effective measures including making of false claim as punishable offence so as to prevent the spread of COVID-19 in the country;

Accordingly, in exercise of the powers of Central Government, conferred under Section 33 P of the Drugs and Cosmetics Act, 1940, it is hereby directed to all concerned ASU&H Regulatory Authorities in the States/Union Territories to stop and prevent publicity and advertisement of AYUSH-related claims for COVID-19 treatment in print, TV and electronic media and take necessary action against the persons/agencies involved in contravening the relevant legal provisions and the aforesaid guidelines of NDMA.

This is issued with the approval of Secretary (AYUSH), Government of India.

Adviser (Ay.) and Head, ASU&H Drugs Policy Section

To

i) **Principal Secretaries/Secretaries (Health/AYUSH) of all States/UTs.**

ii) **State Licensing Authorities/Drug Controllers of AYUSH**

Copy to:

i) Secretary, Ministry of Information & Broadcasting, Government of India with the request for issuing necessary instructions to TV channels.

ii) Secretary, Department of Electronics and Information Technology, Government of India with the request for issuing necessary instructions to Electronic Media.

iii) Secretary, Press Council of India with the request for issuing necessary instructions to Print Media.

iv) Secretary, ASCI with the request for reporting incidences of misleading advertisements/claims of AYUSH as mentioned above.

v) Directors/In-charges of National, Intermediary and Peripheral ASU&H Pharmacovigilance Centres to monitor and report COVID 19 related AYUSH advertisements/Publicity materials.

Adviser (Ay.) and Head, ASU&H Drugs Policy Section

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