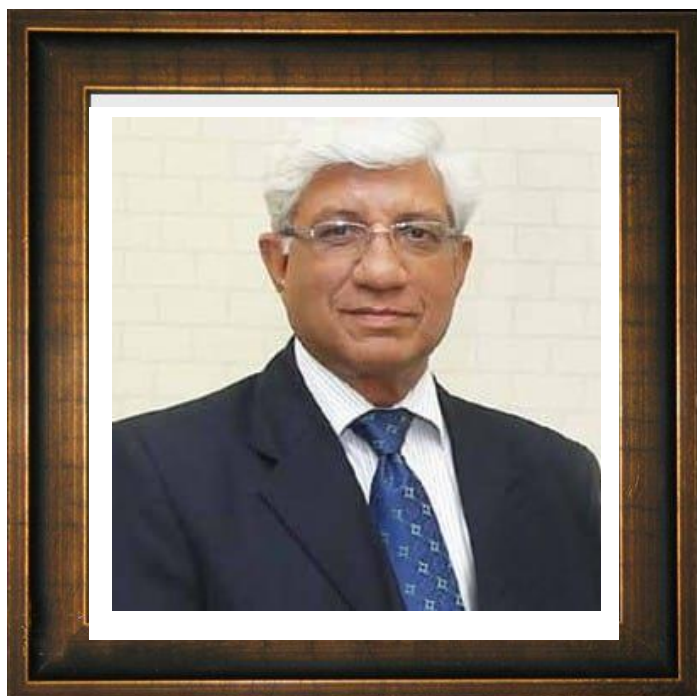


SAAP Bulletin

The newsletter of the South Asian Association of Physiologists

July 2020 | Volume 3, Issue 3 | ISSN: 2714-1756



*This issue of the SAAP Bulletin
is dedicated to
Prof Arif Siddiqui
(April 1948 – May 2020)*

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Published by:

South Asian Association of Physiologists: No.112, Model Farm Road; Colombo-08, Sri Lanka

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(SAAP)

2018-2020

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From Editor's Desk



Professor Piyusha Atapattu

It is with deep sadness that I pen the editorial on the departure of a giant in physiology, Professor Arif Siddiqui, the Founder and the former President of the South Asian Association of Physiologists.

I met Prof Arif for the first time in 2012 at the SAAP conference held in Colombo. However by that time I had known about him for a long time, and he was considered the father of SAAP, a strong personality who never stopped trying to bring SAAP to limelight. My first meeting with him confirmed that what I had heard of him was indeed true.

He was a true leader who could inspire others in the physiology fraternity to achieve what was thought as unattainable. He believed that bringing together the physiologists of SAARC countries would be the way forward, and was devising ways and means of doing his part towards his goal.

Many of his friends, students and associates have contributed to this newsletter dedicated to Prof Arif, who was the brainchild of the original SAAP Bulletin and worked hard to revive it.

Even after he appointed me as the editor of the SAAP Bulletin, he was the person who checked the final product ensuring its quality, and distributed it among the SAAP community. This issue of the SAAP Bulletin dedicated to Professor Arif Siddiqui continues to emanate his presence, and shows what a great personality he has been.

May his guiding light always shine among the SAAP inspiring the next generation to reach greater heights.

Professor Piyusha Atapattu

Department of Physiology, Faculty of Medicine

Tribute to Prof Arif Siddiqui



Prof. Arif Siddiqui, former executive director of National Institute of Health & Social Sciences, former Vice Chancellor of Barrett Hodgson University, an earnest Physiologist and a fervent researcher, succumbed to acute myeloid leukaemia and left this world on May 15th, 2020.

The editorial advisor to BLDE University Journal of Health Sciences on Medical Education, Prof. Arif is survived by not only his blood family but also the field of Physiology for which he worked his entire life. He was one of the founding fathers of

Prof. Siddiqui had the privilege to work in the most prestigious institutes including Aga Khan University, Karachi, RIPHAH University, Islamabad, National Institute of Health & Social Sciences, Islamabad, Barrett Hodgson University, Karachi, Karolinska Institute, Stockholm & St. George's Hospital Medical School, London.

Prof. Siddiqui's major research domains were neuroendocrinology, reproductive physiology and teaching methodologies. More than 35 research

publications in aforementioned fields are on part of Prof. Arif Siddiqui.

Prof. Arif Siddiqui was not only a physiologist of international calibre, but also he was blessed with extraordinary administrative skills as is evident from his appointment on major administrative posts in different institutes all over the world. He was an influencer and this was the thing that made this great educationist reach the heights of glory.

Prof. Arif established Pakistan Physiological Society straw by straw. He very enthusiastically welcomed the great physiologists of the era to heighten up the building of Physiology in Pakistan. The great leader of Physiology was very passionate in having physiologists from around the globe on board in devising policies for the betterment of Pakistan Physiological Society, South Asian Association of Physiologists and Federation of Asian & Oceanian Physiological Societies, of which, he was the President educational committee.

“What I see most in Prof. Arif is his genuine commitment towards Physiology, Education and advancement of Physiology in SAAP region” said Prof. Sharaine Fernando, University of Sri Jayewardenpura, Sri Lanka.

Besides being a great physiologist and a researcher, his wisdom knew no bounds and this was reflected in his ideas and views on issues. He was such an affable personality that his friends, colleagues,

mentors and mentees are all drenched in sadness of his departure.

“Prof. Arif walked on this planet with medals of dignity and integrity leaving behind a rich legacy” said Prof. H.R. Ahmed, mentor of Prof. Arif and founder of Pakistan Physiological Society

Maj. Gen. Muhammad Aslam, Pro-Vice Chancellor National University of Medical Sciences, tributes Prof. Arif Siddiqui as, *“I have found Prof. Siddiqui very righteous person. He was very selective in words. He never did backbiting against anyone but he meant business and he always talked about issues and not about people.”*

Prof. Amar K. Chandra from University of Calcutta, India named Prof. Arif as a warrior who fought for the betterment of Physiology.

Prof. Rooh-ul-Amin from Bangladesh vowed to complete the work that Prof. Arif Siddiqui had to complete.

“I found him a reliable friend, a loyal and selfless brother, a perfect mentor, a keen researcher, a frontline leader of Physiology and above all, a born teacher” said Prof. Dr. Muhammad Ayub, President, Pakistan Physiological Society.

Prof. Dr. Mahwish Arooj, Vice President SAAP, remarked, *“Prof. Arif Siddiqui was a great Physiologist, researcher, teacher, human being and a legend in the true sense.”*

“Prof. Arif was a down-to-earth tall person, a devoted mentor who would lead by

delegation and would invest trust in his team. He is a man of integrity. He would do what he said. He believed in systematic approach and merit in societies” said Prof. Dr. Samina Malik, mentee of Prof. Arif.

“Prof. Arif was a refined person. He would know a person just by looking at him which is a quality lacked by many people” Prof. Dr. Salma remarked.

While sharing his memories about his life experiences with Prof. Arif, Prof. Shaikh Saeed from Saudi Arabia said *“Dr. Arif Siddiqui was more like a brother to me. Prof. Arif and I grew together academically and professionally”*.

“I feel I have lost a great mentor. Prof. Arif helped me establish Physiological Society of Nepal” said Prof. Dr. Rita Khadka, President, South Asian Association of Physiologists (SAAP).

Prof. Dr. Azeem shared how sensitive Prof. Arif was regarding the matter of Pakistan Physiological Society and its connections with international bodies. Prof. Arif remained worried about PPS and talked about Physiology even in his last days.

“It’s an extremely sad incident. Prof. Arif was always helping and encouraging youngsters,” Associate Prof. Dr. Adnan Kanpurwala, Vice President, South Asian Association of Physiologists.

Indeed Prof. Arif Siddiqui was a blend of generosity, wisdom, dignity, humanity, a loving father, a loyal Physiologist, a passionate researcher and a diligent

administrator. The loss of this great personality is irreplaceable and will remain as it is even for centuries to come. We pray to God to ease him in his life hereafter.

Obituary of Prof Arif Siddiqui by Haider Shirazi (a 3rd year medical student inspired by Prof Arif) and Prof. Samina Malik UCMD, UOL (Organizing secretary of SAAP VI and PPS 16 under chairmanship of Prof Arif Siddiqui) who was his confidant and mentee since SAAP I



Prof Arif Siddiqui at the 14th Biennial International Conference of the Pakistan Physiological Society, Hyderabad –March 2015

A Tribute to an Asian Physiology Giant

It was in 2001 where I met this physiology legend for the first time at the IUPS pre-conference teaching workshop held in Lincoln, New Zealand and my last meeting with him was in March 2019 at the FAOPS pre-conference teaching workshop and the conference held in Kobe, Japan. We met approximately every 2 years to share our teaching and research experiences in physiology at the IUPS, FAOPS, or SAAP platforms.

Prof Arif Siddiqui having born in 1948 in Karachi, obtained his basic degree in Biological Sciences with Honours in 1970 and subsequently qualified with a Master of Science in Male Reproductive Endocrinology in 1972, from University of Karachi, Karachi. Because of his interest in acquiring new knowledge, he engaged in research to obtain his Master of Philosophy degree in the field of Reproductive Physiology from Quaid-e-Azam University, Islamabad in 1976. Prof Arif Siddiqui obtained his Doctor of Philosophy in Reproductive Neuroendocrinology from the University of Glasgow, United Kingdom in 1986.

His interest in serving the motherland made him return to Pakistan upon completion of his PhD and engaged in teaching and research in Aga Khan University, Karachi and Islamic International Medical College, Riphah International University, Islamabad. In addition, he extended his services and also

Stockholm, St George's Hospital Medical School, London. He was recognized over his leadership skills by appointing him as the Associate Dean at the Riphah International University, Islamabad for 5 years, until his appointment as the Vice-Chancellor at the Barrett Hodgson University, Karachi for 4 years.

He was a good writer and authored several books on Medical/Physiology education. He has many research publications in accredited journals. He was an editorial board member in the Advances in Physiology Education Journal published by the American Physiological Society and served as the Editor-in-Chief in the same journal at the time of his death. On his invitation, I joined the Advances in Physiology Education journal review team. He was very clever in identifying the capabilities and willingness of people around him. He created opportunities in several occasions for me to mould my career as an academic. Furthermore, as the Chair of the Education Commission of FAOPS, he included me as a member of the Education Commission. He had initiated a programme to collect information on physiology education and research from member countries for which he obtained views of the Commission members. His aim was to initiate more work for the benefit of others and even during his illness, he continued to do so. However, due to his untimely death, he could not fulfil his role as the Chair of the FAOPS Education

Commission upon his appointment as the Chair in 2019. Also, as a long-standing member of the FAOPS Council he supported my initiatives by convincing the FAOPS administration, to enrol the Physiological Society of Sri Lanka as a full member of the FAOPS.

Prof Arif was the Founder of the South Asian Association of Physiologists and organized the 1st SAAP Conference in 2008 in Pakistan. As the Founder he had high expectations on SAAP. He was the Founder Secretary-General and served in this position for several years. He had to provide justification for the establishment of SAAP at the FAOPS Council meeting held in Taipei, Taiwan in 2011. He was a bit disturbed and discussed this with me at the venue after the meeting. Later, FAOPS also recognized his attempt in establishing SAAP. One of his main concerns on SAAP was the delay in registration of SAAP in Sri Lanka. We could not fulfil his dream as several member countries were not in a position to submit the required documents. He attempted to expedite this matter many times in many ways. Prof Arif would have been the happiest person overhearing the news on registering Bangladesh Physiological Society as a professional body in Bangladesh in recent times. At the last informal meeting he had with me and two others in Kobe, Japan he discussed SAAP activities/progress and issues. Prof Arif was the SAAP President at the time of his death. He was a member of the IUPS Council too since 1993 and he was able to organize several IUPS supported workshops during SAAP conferences including the IUPS Teaching workshop held

in conjunction with the 3rd SAAP conference in Colombo, Sri Lanka in 2012. This workshop provided me another opportunity to closely work with him during the organization. My last WhatsApp conversation with him was exactly 1-month before his death. He had a lively conversation enduing his pain and his concerns were over SAAP registration and the 7th SAAP Conference to be organized in India.

As a senior physiologist Prof Arif Siddiqui was a well-known figure among physiologists at the global level. He was a good teacher, researcher, and administrator, the qualities that a university academic should possess. For junior physiologists, he was a dear mentor and he was greatly respected by physiologists. Above all, he was a simple and humble human being with good ethical conduct. He did not like to accept 'no or cannot' as an answer for an activity. He was positive and he wanted his colleagues/friends to work with a positive attitude at all times. Since the first meeting in 2001, we continued our friendship until his untimely death on 15th May 2020. He will always be remembered by the physiology family!

May His Soul Rest in Peace!

Professor Mangala Gunatilake

Dept. of Physiology

Faculty of Medicine

University of Colombo



Prof Arif lighting the traditional oil lamp at the Inauguration of the 3rd SAAP Conference 2012 in Colombo, Sri Lanka



Prof Arif attentively listening to the introduction at the First IUPS supported Teaching workshop at 3rd SAAP Conference at the Faculty of Medicine, University of Colombo



Prof Arif chairing a session at the Teaching workshop -2012 Colombo



Prof Arif addressing the participants as the General Secretary of SAAP, 3rd SAAP Conference Colombo Sri Lanka 2012

Prof. Arif Siddiqui PhD : A Man of Dignity

Our beloved Prof. Arif Siddiqui is no more with us. His sad demise is a great shocking and also devastating for the family of Physiology in this region of the world. He is a great philosopher and outstanding physiologist, a magnificent teacher-above all an amazing human being. So far I know he was suffering from Acute Myeloid Leukaemia (AML) since couple of months and passed peacefully away from this world.

He was the president and founder member of SAAP. SAAP was his dream to strengthen the relationships among physiologists, young researchers and scientists in Southeast Asian region. Later he developed and linked SAAP with IUPS.



Above all he was an excellent educator and untiring person of Physiology.

I am fortunate enough to having him almost all SAAP conferences as a good initiator especially in SAAP-I that was hosted by Pakistan Physiological Society at Shifa College of Medicine. At that time his contribution was really remarkable and unforgettable. He visited Bangabandhu

Sheikh Mujib Medical University (BSMMU) and attended SAAP-IV in 2014.

We the family members of SAAP will never forget you Prof Siddiqui. Your continuous support, good guidance and valuable advice was really helping us for making a platform in Physiology at this part and also made strong bonding among physiologists here.

We lost a good friend. Our respect to our beloved friend will remain. We always remember you. May Allah grant you a highest place in Jannah. My deepest condolence to Mrs Siddiqui and his family.

Prof Noorzahan Begum

Former chairman of Physiology and COE, BSMMU, Dhaka &

Past president, SAAP and BSP, past editor in chief BSMMU journal and BSP journal.

The Golden Journey of SAAP in the Advancement of Medical Science (Part I)



Prof. Dr. Md. Ruhul Amin

*Head of the Department, Physiology
Academic Coordinator, Shahabuddin Medical College, Gulshan 2,
Dhaka Bangladesh. Editor Medicine today. Founder and Adviser,
South Asian Association of Physiologists (SAAP)*

The Death of Prof. Arif Siddiqui

Arif Siddiqui is a name of inspiration for Physiologists, for forward movement. Many friends coloured him in many ways. Ahmad Badar gives him at least dozens of adjectives. When SAAP was born in Islamabad, immediate after that I lost my passport in Karachi. Prof. Sadat Ali Khan, PCPS authority and Bangladesh High commission gave me extraordinary support. Arif Siddiqui in Karachi, gave me inspiration. Since then, we have met at various countries including my homeland, talked and worked together in many occasions to reach our common target. We have no mutual photo, but our mutual understanding was really good. We lost Arif Siddiqui on 15th May 2020, 21st Ramadan, Friday at 9.30 am at Rawalpindi. Many physiologists worldwide were shocked. But I strongly believe his work will live on. He is our inspiration. Arif Siddiqui is a Light House. Let us review his works and go forward to reach our common target.

Late Arif Siddiqui was the man responsible for the creation of SAAP. The writing below is cut from my ongoing writing Golden Journey of SAAP. The writing will tell the story of Arif Siddiqui and birth of SAAP.

SAAP is His Great Achievement

South Asian Association of Physiologists (SAAP) is a unique, widely accepted, broad-based organization for Physiologists in South Asia. It is a non-profitable professional organization committed to the advancement of Physiology from basic research to clinical problems. Therefore it is work for the advancement of Physiology through which it will definitely be helpful in the advancement of Medical Science, and thus for mankind and for a healthy, peaceful world. SAAP is our dream.

Birth of SAAP

Going only as far back as 2007, we, the South Asian Physiologists, could not organize to sit together for the potential advancement of Physiology. To achieve strong, dynamic changes in the field of physiology, an organization was needed. SAAP came into existence through numerous inter-country discussions. Arif Siddiqui, the last President of SAAP, was coming forward with a big vision and dream. To materialize such type of the ambitious vision of Prof. Arif Siddiqui of Aga Khan University of Karachi, Pakistan, had contacted a number of senior Physiologists of Bangladesh, India, Pakistan, and Sri Lanka. The ideas were incorporated into a draft bye-laws of SAAP.



Prof. Arif Siddiqui, pioneer and president of SAAP

It was formulated successfully on 11th Nov. 2007, by the committee led by Siddiqui. South Asian countries came forward very nicely to form an organization of physiologists. The Annual Conference of the Physiological Society of India at Manav Rachana Educational Institution at Faridabad made a good scope to discuss the matter. Arif Siddiqui was given the mandate to contact all the Physiological Societies of South Asian countries. It is a wonderful fact that SAAP baby formation was started from Faridabad India and was born just after one year at Islamabad Pakistan. Gradually it was formulated and then strongly communicated among the member nations. Now we are waiting for SAAP VII Conference

My recent India visit & SAAP VII Conference

One of such philosophers & dream makers of SAAP is Amar Kumar Chandra, a great Indian Physiologist and Organizer, who played a vital role in the formation and development of SAAP. He was three times Secretary General of SAAP and currently an Adviser. Recently during 20 to 23rd January 2020, I visited Kolkata at the invitation of Rabindra Nazrul Foundation, Kolkata. During the visit, it was a good scope to meet with Amar, my close friend, at the

Department of Physiology of historical Kolkata University and discussed the past, present and future of SAAP. We agreed that 2020 is a very important year for SAAP because at the end of the year SAAP VII Conference will be held at Jamia Hamdard University, New Delhi. All SAAP members are eagerly waiting for that conference. We also talked with Prof. Kusal Ksal K Das, Prof. Dilip Kumar Nandi, Prof. Dr. Md. Iqbal Alam and others. Particularly we discussed detail about SAAP VII conference.



We are the founders of SAAP and working together for its development

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Indian Council for Cultural Relations Kolkata conference hall highly enlightened that 20th January Monday evening by the Bangladeshi and Indian professionals among them famous linguist Dr Pabitra Sarkar, former chief justice of Kolkata

high court Shyamal Kumar Sen, famous poet of Bangladesh. We exchanged our views. Arif Siddiqui was informed about my previsit program in Kolkata and he inspired me.

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Department of Physiology Kolkata University, Kolkata.



Arif & Amar. Good combination of A & A. Vision is far away

The Golden Journey was started from ISLAMABAD CONFERENCE 2008

To establish SAAP, 1st South Asian conference of Physiological Societies & 11th Biennial Conference of Pakistan Physiological Society (PPS) was held at 10-12 Nov. 2008, at Shifa College of Medicine, Islamabad, Pakistan. Prof. Mohammad Aslam and Prof. Nasir Afjal were the great organizer of that conference



Golden Journey of SAAP started from Shifa College of Medicine Islamabad, Pakistan and circulated all over the South Asian Nations to the world.

For the cordial invitation of Prof. Arif, Siddiqui for his lively reception we were in Pakistan Youth Hostels Association (PYHA), where we stayed and worked for the formation of SAAP. Many memories, stories and key interactions are associated with that place, which later helped us execute our dream. We never forgot those memorable days. Long live the Youth Hostel Movement, which is an international hostel movement founded by a German school teacher. We are lucky enough for that proud moment of SAAP formation. Prof. MA Hai was the leader, itself his presence was extraordinary feelings among all. Prof. Norjahan begum, Prof. Symal Roy Choudhury, Prof. Amar Kumar Chandra, and

we all from South Asian Nations and international leaders were in the hostel.



A beautiful combination of South Asian and other International friends, resolute to work together for Physiology. These endless smiles indicate that we will win.





In the formation of SAAP we were working together with joy.

Bangladeshi Physiologists enjoying Pakistan.



Walk step by step but no hurry. We all enjoyed the beautiful Murree. Few steps for the future... Memorable moments. We united together for SAAP formation. Our motions, emotions in each step for the formation of SAAP under the leadership of Prof. MA Hai. Really historical steps for the development of Physiology.

Sharing few memories related to Prof Arif Siddiqui

team of physiologists from Nepal along with Prof B H



With Prof Arif during FAOPS 7 in Taipei, Taiwan in 2011

I feel, we have lost a great physiologist, leader, academician, researcher, and well-wisher. Hardly have I found these all attributes in a single person. For the first time, I met Prof Arif Siddiqui in Kyoto, Japan during IUPS 2009. I found him a very cheerful person. He asked me about the physiological society in Nepal. At that time we did not have a Physiological society in Nepal. Then he suggested establishing a Physiological Society in Nepal and applying for membership of South Asian Association of Physiologists (SAAP). He continuously encouraged me in emails for it. Along with him late Prof Shyamal Roy Choudhury and Prof Amar Kumar Chandra encouraged us for it. I discussed the matter with our colleagues in Nepal, initiated the steps, and with a

Paudel worked hard for it. The physiological Society of Nepal (PSN) could be established and got registered in SAAP in 2010 during the SAAP 2 conference in Bangalore, India. I always found him hard-working, dedicated, sincere, and encouraging for the growth of physiology in the region. I remember during the Executive Council meeting of SAAP 3 held in Sri Lanka, he said "it would be better if physiology is introduced in school level courses also so that we can develop understanding and interest of students more in physiology."

When the SAAP V conference was to be held in Nepal in Nov 2016, Nepal faced a devastating earthquake followed by aftershocks for several months in 2015 that held us back. We were discouraged and hopeless and were about to announce that we were not able to organize the SAAP V conference in Nepal. But it

was Prof Arif Siddiqui, who encouraged us again for organizing the conference. Prof Arif Siddiqui planned for SAAP V to be conducted in a very short period in Nepal after the situation became a bit normal in Nepal. The plan was made in Bangkok, Thailand during FAOPS 8 in Nov 2015. Prof Amar Kumar Chandra, from India and Prof Mangala Gunatilake, from Sri Lanka were also in the meeting. He introduced me to Prof Robert G Carroll from the USA and a few other distinguished personalities also there. That was the step for the initiation of preparation for the SAAP V conference.

Along with Prof Arif Siddiqui and Prof Amar Kumar Chandra, the generous and supportive SAAP members; from India Prof Kusal Das, late Prof Shyamal Roy Choudhury, Prof KK Deepak, Prof G K Pal; from Sri Lanka Prof Shavithri Wimalasekera, Prof Sharaine Fernando, Prof Piyusha Atapattu; From Pakistan Prof Muhammad Aslam, Prof H R Ahmad, Prof Samina Malik; from Bangladesh Prof Noorzahan Begum, Prof Sultana Ferdousi, Prof Fatima Khanam and other members of SAAP and International members continuously supported us and gave appropriate suggestions. Prof Arif Siddiqui worked hard also for getting funding for the conference and other managements. Physiologists from almost all medical colleges of Nepal contributed and worked hard for the success of the conference and it was a grand success of the conference. However, we missed Prof Arif Siddiqui at the conference because he was unable to attend the SAAP V conference because of some official priority works.

My last meet with Prof Arif Siddiqui was in Lahore, Pakistan during SAAP VI in Dec 2018. I can never forget the wonderful events organized in the conference and hospitality provided. It was a wonderful conference. The credit of it goes to Prof Samina Malik, Prof Muhammad Aslam, Prof Arif Siddiqui, and the whole organizing team of SAAP VII. I still remember their faces and their words. It is the truth that now onwards we can never hear words from Prof Arif Siddiqui, However, his suggestions, opinion, and direction of working will be reverberating in our minds and helping us.

The last words I heard from him was on March 30, 2020, when I talked with him on SKYPE. He was well at that time but afraid of the next chemo dose to be taken. At that time also he talked more about SAAP activities. In the true sense he was a very devoted leader, whose vision and mission was to develop physiological sciences in the region.

I can never forget him. Because of his suggestions and encouragement we (PSN members) initiated working for PSN and SAAP. Later I was also elected as the President of SAAP (2016-2018). I feel he gave us a precious message i.e. working for the development of physiology in the region. I hope to work for it together with our PSN and SAAP members as much as I can. With these words I pray to god to rest his departed soul in eternal peace and give strength to his family members and all to bear this irreparable loss.

Dr Rita Khadka

Additional Professor

*B. P. Koirala Institute of Health Sciences
Nepal*



Delegates at SAAP V

Herbal gold nanoparticles for attenuating pandemic infection of COVID-19 virus

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Emergence of new virus and their heterogeneity are growing at an alarming rate. Sudden outburst of Coronavirus has raised serious question about their instant management using conventional medication and diagnostic measures. Vaccines train the immune system to prevent people developing a disease, such as Covid-19. If enough people become immune then the coronavirus would not be able to spread so effectively. Since, there is no vaccine or specific treatment for COVID-19, so the researchers have been racing to learn more about it.

Researchers have found that the name "coronavirus" is derived from Latin corona, meaning "crown" or "wreath. The name refers to the characteristic appearance of virions (the infective form of the virus), which have a fringe of large, bulbous surface projections creating an image reminiscent of a crown or of a solar corona.

Coronaviruses are large pleomorphic spherical particles with bulbous surface projections. The average diameter of the virus particles is around 120 nm. Infection begins when the viral spike (S) glycoprotein attaches to its complementary host cell receptor. After attachment, a protease of the host cell cleaves and activates the receptor-attached spike protein.

The review study proposed that nanoparticles of similar sizes can attach to COVID-19 viruses, and disrupt their structure with a combination of infrared light treatment. That structural change would then halt the ability of the virus to survive and reproduce in the body.

Development in the field of nanotechnology has embossed the necessity of utilizing therapeutic nanoparticles for the detection and treatment of diseases. Nanoparticles can disable these pathogens even before they break into the body, as they hold on to different objects and surfaces. Among the metallic nanoparticles gold nanoparticles (AuNPs) has great importance because of its wider applications in drug delivery, biomedical, biosensor, anticancer, antioxidant due to its biocompatibility well defined size, shape, stability and can be easily synthesized.

Green synthesis of herbal gold nanoparticles (AuNPs) by using plants and its extract have received much interest due to its eco-friendliness, less biohazardous, non-toxicity, cost effectiveness and easily scalable. AuNPs could also be synthesized by green synthesis method but their direct use as an antiviral agent is scant. Except in some findings, that too when, AuNPs stabilized with certain biocompatible polymer could act as an effective antiviral agent against HIV1, H1N1, H3N2, H5N1, dengue virus, bovine viral diarrhea virus and Foot-and-mouth disease virus (FMDV). For example Ahmed et al also described the capability of positively charged AuNPs for H1N1 and H3N2 detection by mimicking peroxidase enzymatic reaction assay. Likewise there are other examples where hybridized AuNPs demonstrated effective antiviral activity. Yet, there are no such findings that AuNPs can attenuate pandemic infection of COVID-19 virus.

Herbal gold nanoparticles has effective antiviral activity, hence further investigations are required to find out the potential beneficial effects of AuNPs to fight against COVID-19 virus.

Compiled by Professor Piyusha Atapattu
Editor-in Chief, SAAP Bulletin

