

= Salimuzzaman Siddiqui =

Salimuzzaman Siddiqui (Urdu : ????? ??????? ?????? [s??li?m?zz?m??n s??d ? d ? i?qi] ; 19 October 1897 ? 14 April 1994) , HI , MBE , SI , DPhil , FPAS , FRS , was a Pakistani organic chemist , versatile scholar , and a leading scientist in the natural product chemistry . He is credited for pioneering the isolation of unique chemical compounds from the Neem (*Azadirachta indica*) , *Rauwolfia* , and various other flora . As the founder director of H.E.J. Research Institute of Chemistry , he revolutionised the research on pharmacology of various domestic plants found in South Asia to extract novel chemical substances of medicinal importance .

In addition to his scientific talents , Siddiqui was also an avid painter , a poet , and a great connoisseur of Western music . His paintings were exhibited in the United States , Germany , India , and Pakistan .

= = Early life = =

Harris was born in Subeha (Barabanki District) near Lucknow on 19 October 1897 . He received his early education from Lucknow , both in the Urdu and Persian languages , and soon developed interest in literature , poetry , and calligraphy from his father Sheikh Muhammad Zaman . He graduated in Philosophy and Persian language , from Muhammadan Anglo @-@ Oriental College (that would later become Aligarh Muslim University) in 1919 .

In 1920 , Siddiqui proceeded to University College London to study medicine . However , after one year of pre @-@ medical studies , he moved to Frankfurt University in 1921 to study chemistry . In 1924 , he married his German classmate , Ethel Wilhelmina Schneeman . He received Doctor of Philosophy under the supervision of Prof Julius Von Bram in 1927 .

On his return , he established the Ayurvedic and Unani Tibbi Research Institute at the Tibbia College Delhi , under the guidance of Hakim Ajmal Khan . He was appointed its first Director . However , soon after the death of Hakim Ajmal Khan , Siddiqui left the post . In 1940 , he joined Indian Council for Scientific and Industrial Research where he worked until 1951 when he migrated to Pakistan on the request of Prime Minister Liaquat Ali Khan .

= = Pioneering research = =

Siddiqui 's first breakthrough in research came when he successfully isolated an antiarrhythmic agent in 1931 from the roots of *Rauwolfia serpentina* . He named the newly discovered chemical compound as Ajmaline , after his mentor Hakim Ajmal Khan who was one of the illustrious practitioners of Unani system of medicine in South Asia . Later on , Siddiqui also extracted other alkaloids from *Rauwolfia serpentina* that included Ajmalinine , Ajmalicine ($C_{21}H_{24}N_2O_3$) , Isoajmaline , Neoajmaline , Serpentine and Serpentinine . Many of these are still used worldwide for treatment of mental disorders and cardiovascular ailments , especially as antiarrhythmic agents in Brugada syndrome .

= = Discoveries from Neem = = =

Siddiqui was the first scientist to bring the anthelmintic , antifungal , antibacterial , and antiviral constituents of the Neem tree to the attention of natural products chemists . In 1942 , he extracted three bitter compounds from neem oil , which he named as nimbin , nimbinin , and nimbidin respectively . The process involved extracting the water @-@ insoluble components with ether , petrol ether , ethyl acetate and dilute alcohol . The provisional naming was nimbin (sulphur @-@ free crystalline product with melting point at $205^{\circ}C$, empirical composition $C_7H_{10}O_2$) , nimbinin (with similar principle , melting at $192^{\circ}C$) , and nimbidin (cream @-@ coloured containing amorphous sulphur , melting at $90 - 100^{\circ}C$) . Siddiqui identified nimbidin as the main active antibacterial ingredient , and the highest yielding bitter component in the neem oil . These compounds are stable and found in substantial quantities in the Neem . They also serve as natural

insecticides .

In acknowledgement of these revolutionary discoveries , he was awarded the Order of the British Empire in 1946 .

In his later career , Siddiqui continued to discover and isolate numerous unique anti @-@ bacterial compounds from various parts (leaves , bark , etc .) of the Neem and other plants . He had more than 50 chemical compounds patented in his name in addition to those discovered as a result of his joint research with other colleagues and students . Most of these discoveries still remain vital natural ingredients of various medicines as well as biopesticides .

= = Research leadership = =

Siddiqui migrated to Pakistan in 1951 , four years after the emergence of Pakistan in 1947 , after being offered and appointed as " science advisor " to the government by Prime minister Liaquat Ali Khan . He was appointed as Director of the Pakistan Department of Research that was reformulated in 1953 as Pakistan Council of Scientific and Industrial Research (PCSIR) . The aim of PCSIR was to support the industrial infrastructure through research and development . The regional laboratories of the institution were located in Dhaka , Rajshahi and Chittagong (East Pakistan) , and in Lahore and Peshawar (West Pakistan) . In 1953 , he founded the Pakistan Academy of Sciences as a non @-@ political think tank of distinguished scientists in the country . In 1956 , when Government of Pakistan established Pakistan Atomic Energy Commission (PAEC) as an atomic research agency , Siddiqui was designated as its technical member .

In recognition of his scientific leadership , Frankfurt University granted him the degree of D.Med. Honoris causa in 1958 . Also in 1958 , the Government of Pakistan awarded him with Tamgha @-@ e @-@ Pakistan . In 1960 , he became the President of Pan @-@ Indian Ocean Science Association . The same year , he was elected Fellow of the Royal Society . In 1962 , he was awarded the Sitara @-@ e @-@ Imtiaz for distinguished merit in the fields of science and medicine . Siddiqui remained the director and chairman of PCSIR until the time of his retirement in 1966 . In that year , the President of Pakistan awarded him the Pride of Performance Medal for the respectable completion of his service . In 1967 , Siddiqui was invited by University of Karachi to set up a Postgraduate Institute of Chemistry in affiliation with the Department of Chemistry . He was designated as the institute 's Founder Director , whereas the additional research staff was provided by PCSIR .

In 1976 , the institute was offered a generous donation from Hussain Jamal Foundation , as a Harris naveedcHussain Ebrahim Jamal Research Institute of Chemistry . In due time , Siddiqui transformed the institute into a distinguished centre of international excellence in the field of chemistry and natural products . In March 1975 , he headed the National Commission for Indigenous Medicines His tireless efforts for the promotion of science and technology earned him Hilal @-@ e @-@ Imtiaz by the Government of Pakistan in 1980 . In 1983 , he played a major role in the establishment of the Third World Academy of Sciences and became its Founding Fellow . He remained the director of the Hussain Ebrahim Jamal Research Institute of Chemistry until 1990 . Later on , he continued research in his personal laboratory .

= = Death and legacy = =

Siddiqui died on 14 April 1994 due to cardiac arrest after a brief illness in Karachi . He was buried in the Karachi University Graveyard . Despite his death , the academic and research institutes that he founded during more than 65 years of his research career are still contributing to the international level research in natural products chemistry .

As a person of multiple talents , Siddiqui was also a refined poet , musician , and a painter . In August 1924 , he held his first international exhibition of paintings in Frankfurt . Later in 1927 , his works of art were exhibited at the Uzielli Gallery , Frankfurt . During his stay in Germany , he also translated Rainer Maria Rilke 's poetry into Urdu , which was published in the journal of Jamia Millia Islamia . Though , his passion for arts was superseded by the enthusiasm in scientific research , he

continued to patronise arts and culture . In 1966 , he was at the forefront for setting up the Central Institute of Arts and Crafts in Karachi . He also compiled a selection of poetry of Mir Taqi Mir into Intekhab @-@ e @-@ Meer . In 1983 , he published a portfolio collection of charcoal drawings from 1920 to 1950s .

On 14 April 1999 , the Pakistan Post , as part of its ' Scientists of Pakistan ' series , issued a commemorative stamp to honour the contributions and services of Siddiqui . In the same year , the street leading to PCSIR Laboratories Complex in Karachi was named as Shahrah @-@ e @-@ Dr. Salim @-@ uz @-@ Zaman Siddiqui . Siddiqui was also remembered by his students and colleagues , many of whom continued to dedicate their international research and publications to his memory . In 2002 , a research article was published in the journal Tetrahedron in which , authors Faizi and Naz dedicated their break @-@ through research to the memory of Siddiqui , their mentor .

= = Awards and honours = =

Siddiqui was a founder @-@ member of the Indian and Pakistan Academies of Sciences , and later a founder member of the international body the Third World Academy of Sciences . The following are the honours he received , in reverse chronological order :

Gold medal of the Soviet Academy of Sciences

Hilal @-@ e @-@ Imtiaz , 1980

President of Pakistan 's Pride of Performance Medal , 1966

Sitara @-@ e @-@ Imtiaz , 1962

Fellow of the Royal Society , 1961

President , Pan @-@ Indian Ocean Science Association , 1960

Tamgha @-@ e @-@ Pakistan , 1958

D. Med . Honoris causa from the Frankfurt University , 1958

Foundation Fellow , Pakistan Academy of Sciences , 1953

MBE in 1946 .