# PSN NEWS LETTER

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## SPECIAL MEMORIAL ISSUE
## 2020

## TRIBUTE TO EMINENT NEMATOLOGIST

**PROF. DR. SHAHINA FAYYAZ**

**(4th April, 1959 - 20th March, 2020)**

# PROF. DR. SHAHINA FAYYAZ

(4 April, 1959 - 20 March, 2020)

Meritorious Professor Dr. Shahina Fayyaz, an eminent nematologist of Pakistan known worldwide, passed away peacefully on to the everlasting heavenly abode on Friday, March 20, 2020 after a protracted illness. We pray to Allah Almighty that the departed soul may rest in eternal peace in heaven, Ameen!

Professor Shahina's death is a great loss for the Pakistan Society of Nematologists, National Nematological Research Centre (NNRC), University of Karachi, and the scientific community of Pakistan, as well as the International Nematologists community. By passing of Dr. Shahina, the world lost an outstanding nematologist, eminent nematode taxonomist, dedicated scientist, dynamic researcher, a caring community leader, coordinator and an enthusiastic teacher/mentor- an asset for the discipline of Nematology in the country, but above all a nice human being.

Prof. Shahina had a long and brilliant service in teaching and research at University of Karachi. She served the NNRC for 38 years with utmost dedication and professionalism. Dr. Shahina was a distinguished, enthusiastic and dedicated nematologist and had been associated with the centre since its establishment. She played a key role in developing and strengthening the NNRC through international scientific engagement and bringing research funds. The Centre gained ISO Certification 9001:2015 for Diagnostic Services and Educational Programs in Nematology under her leadership.

Professor Shahina Fayyaz was born on April 4, 1959 in Karachi, Pakistan. Dr. Shahina received her M.Sc. degree in Botany (Plant Pathology) in 1980 from the Department of Botany, University of Karachi. She joined the NNRC as a Research fellow in 1981. She was appointed as "Research Officer" in the PL-480 project in 1982 for five years and was selected as Scientific Officer in 1988; She dedicatedly began research on plant parasitic nematodes and earned her Ph.D. (Plant Nematology) in 1989 under the supervision of Dr. M. A. Maqbool from University of Karachi. She became Senior Scientific Officer in 2000, elevated to in-charge in 2002, after the retirement of her mentor/director, Dr. Maqbool; she was appointed as Director of NNRC in 2003. In 2009 she was appointed as Professor and, in recognition of her contributions, she was promoted as Meritorious Professor by the University of Karachi in 2013 and retired as Director of NNRC on April 3, 2019 after long, professional and meaningful career.

She served the Pakistan Society of Nematologists (PSN) as the General Secretary/Treasurer till her death. She also served as Associate Editor of Pakistan Journal of Nematology (PJN) from 1995 to 2001 and Managing Editor from 1995 till her death. She was one of the major forces behind the success of NNRC, the PSN and PJN. It was basically her initiative that PSN has been regularly publishing PSN Newsletter since 2002.

Dr. Shahina was a well-travelled scientist and received International Trainings in Nematology by visiting various research institutions. She received advance training in Nematology from USDA, Beltsville, Maryland, USA with the infamous Nematologist Dr. Morgen Golden and his team, CAB Institute of Parasitology, St. Albans and Rothamsted Experimental Station, Harpenden, UK with Dr. Siddiqi and Dr. David Hooper, respectively. She also got some training on the nematode techniques at Scottish Crop Research Institute, Dundee, Scotland, UK. Dr. Shahina won a prestigious Marie Curie Post-Doctoral Fellowship of the Commission of the European Communities (CEC) for Post-Doctoral study and worked at International Institute of Parasitology (IIP), St. Abans, UK with Dr. Hunt, Dr. Siddiqi and Dr. De Ley. Learned advanced molecular techniques for entomopathogenic nematodes at the Guangdong Entomological Institute, Guangzhou, P.R. China.

Prof. Shahina was a celebrated nematologist with numerous awards and honours. She was given the "Life Time Achievement Award" by Pakistan Society of Nematologists for consecutively sharing her expertise in an honorary capacity of General Secretary/ Treasurer of the Society; vast scientific excellence and for her relentless and selfless service to the subject of Nematology as well as to the Centre and Society. Dr. Z. A. Hashmi Gold Medal was awarded to her by Pakistan Science Foundation for being the most productive principal investigator of PSF funded S&T projects.

She provided training in Nematology as a resource centre to teachers, research scholars, students, and extension workers as well as to farmers from all over the country. Dr. Shahina also served as a consultant, resource person in IPM farmer program in Sindh and Punjab provinces under a FAO-UN Cotton IPM Programme. She also supported commercial activities and developed a nematological lab at the Shakarganj Sugar-cane Research Institute (SSRI) at Jhang- Pakistan, in 2006. In 2017, she became a member of the Technical Committees and Board of Trustees of Pakistan Science Foundation (PSF).

She organized numerous symposia, conferences and workshops regularly on International and national basis and participated in international conferences around the four continents, viz., Africa, Asia and the Pacific, America and Europe.

As a professional and an accomplished researcher she won and undertook 18 research projects as PI or Co-PI funded by various agencies including International Foundation for Science (IFS), Pakistan Science Foundation (PSF), Pakistan Agricultural Research Council, Higher Education Commission (HEC) of Pakistan, World Wide Fund for Nature- Pakistan (WWF-P). Her competent supervision produced 13 Ph. Ds and 4 M. Phil scholars. Prof. Shahina pioneered research on entomopathogenic nematodes (EPN) in Pakistan and added a state of the art EPN laboratory at the NNRC. She also established molecular diagnostics lab and got 250 accessions for different nematodes. She obtained a US patent and 11 Pakistan national industrial patents on EPN techniques and EPN use as bio-pesticides.

Prof. Shahina Fayyaz published more than 236 research papers in peer reviewed journals of international repute as well as numerous books, booklets, book chapters and proceedings as author or co-author.

She will be greatly missed for a long-time to come but her gentle personality will be remembered for ever and her name will remain alive through her scientific and academic contributions. May she rest in peace- Ameen!

Dr. Firoza Kazi,
NNRC, UOK,
Karachi- Pakistan

## CONTRIBUTIONS OF PROF. DR. SHAHINA FAYYAZ

### HUMAN RESOURCE DEVELOPMENT

**Ph. D Supervised**

1. Dr. Tabassum Ara Khanum: "*Taxonomic Studies on Plant And Soil Nematodes of Sugarcane fields with special reference to Entomopathogenic nematodes*" (2010)
2. Dr. Erum Iqbal: "*Screening of the Genetic Diversity of Wheat Germ Plasm against Cyst Nematodes of Pakistan*" (2011)
3. Dr. Mussarat Ramzan: "*Genetic Diversity of Resistant and Susceptible Rice and Soybean Cultivars with reference to Root-knot Nematodes*" (2011)
4. Dr. Muhammad Ismail Bhatti: "*Biological control of Red Palm Weevil, Fruit Fly and Armyworm through EPNs*" (2011)
5. Dr. Syed Asim Rehan Kazmi: "*Studies on Biodiversity of Entomopathogenic Nematodes, Symbiotic Bacteria and their Insecticidal Properties*" (2012)
6. Dr. Salma Javed: "*Mass Production of Entomopathogenic nematodes for Biological Pest Suppression*" (2013)
7. Dr. Mehreen Gulsher: Distribution and phylogenetic relationship (molecular identification) of entomopathogenic nematodes (2013)
8. Dr. Muhammad Tariq: "*Nematode Problem of some Important Medicinal Plants and their Management in Sindh, Pakistan*" (2013)
9. Dr. Hajra Nasreen Bhatti: "*Bio-control of Root-knot Nematodes in Cucurbitaceae using Vesicular Arbuscular Mycorrhizal Fungi* (*VAM*)" (2013)
10. Dr. Muhummad Israr: "*Impact of Nematode Infestation on Nutritional Quality of some Underground Vegetables in Pakistan*" (2017)
11. Dr. Saima Majeed: "*Studies on Important Nematodes of Pakistan using Molecular Tools*"(2017)
12. Dr. Taimoor Khan: *Distribution and Management of Plant Parasitic Nematodes Associated with Banana in District Lasbela, Baluchistan* (2018)
13. Dr. Ashfaque Ahmed: *Cotton Pests and their Biomanagement in Sindh Pakistan* (2020)
    Two students have submitted PhD thesis in 2020.

**M. Phil supervised**

1. Ms. Tasneem Mujtaba: "*Screening of Genetic Diversity of Vegetables against Meloidogyne spp. Root-knot Nematodes of Sindh, Pakistan*" (2012)
2. Ms. Aatika Sikander: "*Biodiversity and Community Analysis of Nematode fauna of Maiz and other Crops from adjoining areas of Maize fields from Punjab, Pakistan*"(2015)
3. Ms. Uzma Ishaque: "*Review of the genus Helicotylenchus Steiner, 1945* (*Nematoda: Hoplolaimidae*) *with updated Diagnostic Compendium*" (2018)
4. Ms. Samina Sultan: "*Biodiversity of Plant Parasitic Nematode fauna of Parachinar, Kurram Agency, Khyber Pakhtunkhwa, Pakistan*" (2018)

**MS & BS Theses supervised**

1. Mr. Amer Zareen, M. Sc. Project entitled: "Studies on Fungi and Nematodes Associated with Betel vine (*Piper betle* L.)" (2005)
2. Mr. Shahan Aziz, BS (Agriculture) Thesis entitled: "Analysis of Bio-diversity of Nematode Fauna at newly established Botanical Garden, University of Karachi" (2007)

3. Mr. Amir, BS Thesis entitled: "Identification of Plant Parasitic Nematodes infecting Vegetables in Dargi, Malakand area" (2009)
4. Mr. Kamran, BS Thesis entitled: "Identification of Entomopathogenic Nematodes from Vegetables growing areas of Dargai" (2009)
5. Ms. Javeria Paracha, BS Thesis entitled: "Isolation and Identification of Plant Parasitic Nematodes in Mango Plant" (2017)
6. Ms. Faiza Naz, BS Thesis entitled: "Identification of the Plant Parasitic Nematodes of *Citrus* spp. in the University of Karachi Fields"(2017)
7. Ms. Sidra Asghar, BS Thesis entitled: "Isolation and Identification of Plant Parasitic Nematodes infesting *Spinacia oleracea* L." (2017)
8. Ms. Muniba Urooj, BS Thesis entitled: "Identification of the Plant Parasitic Nematodes of the *Zea mays* L. in the fields of Baldia Town, Karachi" (2017)
9. Afifa Suhail Rana, BS Thesis entitled:"Isolation and Identification of Plant Parasitic Nematodes in Christ Plant, Copper Leaf, Jungle Flame, Rose and Ulta Ashok" (2019)
10. Sadaf Zaman, BS Thesis entitled: "Isolation and Identification of Plant Parasitic Nematodes in Champa plant, China rose, Good Luck tree, Jasmine and Marigold" (2019)

**SUPERVISION OF THE PROJECTS IN CAPACITY OF PRINCIPAL INVESTIGATOR OR CO-PRINCIPAL INVESTIGATOR**

- "Studies on the cyst nematodes of Pakistan with special reference to *Heterodera cynodontis* Shahina and Maqbool 1989" (January 1991 – December 1993). Sponsored by International Foundation for Science.
- "Studies on the entomopathogenic nematodes" (April, 1997 – March, 1998). Sponsored by University of Karachi.
- "Studies on the entomopathogenic nematodes of Sindh region" (July, 1997 – June, 2000). Sponsored by Pakistan Science Foundation.
- "Studies on the infectivity of *Heterorhabditis indicus* (entomopathogenic nematodes) against the American bollworm of cotton" (November, 1998 – October, 1999). Sponsored by University of Karachi.
- "Studies on the infectivity of *Steinernema* BS-266 and *Heterorhabditis indicus* (entomopathogenic nematodes) against the *Heliothis* spp." (August, 1999 – July, 2000). Sponsored by University of Karachi.
- "Taxonomic studies on the plant and soil nematodes of sugarcane fields with reference to entomopathogenic nematodes" (August, 2001 – July, 2002). Sponsored by University of Karachi.
- "Systematics and distribution of nematode fauna of citrus fields from Sindh and Punjab region of Pakistan" (April, 2002 – March, 2003). Sponsored by University of Karachi.
- "Systematics and distribution of nematode fauna of citrus fields from Sindh and Punjab region of Pakistan" (April, 2003 – March, 2004). Sponsored by University of Karachi.
- "Studies of the field efficacy of the entomopathogenic nematodes as bio- pesticides" (July, 2002 – June, 2005). Sponsored by Pakistan Science Foundation.
- "Integrated Nematode Disease Management (INDM) in some cereals, fruits and vegetables of Pakistan" (May, 2003 – April, 2006). Sponsored by Pakistan Agriculture Research Council (PARC) – ALP, Islamabad.
- "Genetic diversity of resistant and susceptible rice and soybean cultivars with reference to root-knot nematodes" (2004 – 05). Sponsored by University of Karachi.
- "Genetic diversity of resistant and susceptible rice and soybean cultivars with reference to root-knot nematodes" (2005 – 06). Sponsored by University of Karachi.
- "Nematode problem of medicinal plant and their management in Sindh" (2006-07). Sponsored by University of Karachi.
- "Screening of the genetic diversity of wheat germ plasm against cyst nematodes of Pakistan" (July, 2006 - June, 2009). Sponsored by Higher Education Commission (HEC), Islamabad.

- "Application of Biopesticides Entomopathogenic Nematodes in vegetable fields affected with Root-knot nematodes" (September, 2010 - August, 2013). Sponsored by Pakistan Science Foundation under NSLP.
- AM fungi as potential biocontrol agent for crop improvement and bio-protectant against root-knot nematodes"(September, 2011 - August, 2014). Sponsored by Pakistan Science Foundation under NSLP.
- Molecular characterization, Mass production and Formulation of Entomopathogenic Nematodes (July, 2012 - June, 2016). Sponsored by Pakistan Science Foundation under ILP.
- Development of Noval bacterium based biopesticide for Integrated Pest Management" (July-2017- June, 2019) Sponsored by Pakistan Science Foundation under ILP.

**INTERNATIONAL PATENT**

1 **US 2010/ 0197289: F. Shahina,** K. A. Tabassum and M. H. Soomro. Entomopathogenic nematodes and their storage.

**NATIONAL PATENT**

1 PAK Patent No. 140579: **Shahina Fayyaz**, Asim Rehan Kazmi, Tabassum Ara Khanum, Mehreen Gulsher and Salma Javed. A process for preparation of bio-pesticides using *Xenorhabdus nematophila* (strain HAM,-10) against wax moth larvae and vine mealy bug in Pakistan.

2 PAK Patent No. 140580: **Shahina Fayyaz,** Tabassum Ara Khanum, Salma Javed and Mehreen Gulsher. A process for preparation of bio-pesticides from *Photorhabdus luminescens* against *Galleria mellonella* larvae and subteranean termite (Termitidae: *Macrotermis*).

3 PAK patent No. 140622: **Shahina Fayyaz,** M.H. Soomro, Tabassum Ara Khanum and Erum Iqbal. A Process of preparation of a bio-pesticide from *Steinernema pakistanense, S. asiaticum, S. feltiae,* and *Heterprhabditis indica* entomopathogenic nematodes.

4 PAK Patent No. 141035: **Shahina Fayyaz,** M. H. Soomro, Tabassum Ara Khanum and Ismail Bhatti. A process of preparation of rearing diet for *Galleria mellonella* larvae, used for isolation and mass production of beneficial organisms.

5 PAK Patent No. 141095: **Shahina Fayyaz,** Tabassum Ara Khanum and Asim Rehan. Process of using three entomopathogenic nematodes as a biopesticides against subteranean termite *Microtermis* spp. (Isoptera: Macrotermitidae).

6 PAK Patent No. 141447: **Shahina Fayyaz,** M. H. Soomro and Salma Javed. A process of preparation *in vitro* and *in vivo* methods for mass production of entomopathogenic nematodes as a biological control agent, alternative to chemical control.

**7** PAK Patent No. 141641: **Shahina Fayyaz** and Tabassum Ara Khanum. A process of preparation of a bio-pesticide from *Oscheius andrasyii*, an entomopathogenic nematode from Pakistan.

8 PAK Patent No. 141630: **Shahina Fayyaz,** Tabassum Ara Khanum and M. H. Soomro. Method for biological control of insect pests by *Phasmarhabditis pakistanensis* n.sp. a new entomopathogenic nematode.

9 PAK Patent No. 141515: **Shahina Fayyaz** and Tabassum Ara Khanum. Method for suppression of plant parasitic nematode through entomopathogenic nematodes *Steinernema* and *Heterorhabditis.*

10 PAK Patent No. 141837: **Shahina Fayyaz** and Tabassum Ara Khanum. Method for controlling plant parasitic nematode through *Oscheius niazii*, an entomopathogenic nematode.

11 PAK Patent No. 142436: **Shahina Fayyaz,** Mehreen Gulsher and Salma Javed. Process for preparation of biopesticides for suppression field pest, root-knot nematodes.

**Some patents are under filing process.**

**RESEARCH PUBLICATIONS:**

**International Books**

1. **Shahina, F.,** K. A. Tabassum and M. H. Soomro (2013). Entomopathogenic Nematodes and their Bacterial Sybionts from Pakistan. Lambert Academic Publishing, 352 pp.

2. **Shahina, F.,** K. Nasira and M. H. Soomro (2013). Marine Nematode Biodiversity of Arabian Sea in Pakistan. Vol. 1. Lambert Academic Publishing, 406 pp.
3. K. Nasira, **Shahina, F.** and K. Kamran (2013). Marine Nematode Ecology Vol. II Lambert Academic Publishing, 238 pp.

**National Books**

1. **Shahina, F.** and M. A. Maqbool (1995). *A monograph on cyst nematodes of Pakistan (Heteroderidae)*. National Nematological Research Centre, University of Karachi, Karachi, 120 pp.
2. Maqbool, M. A. and **F. Shahina** (2001). *Biodiversity of Nematode Fauna in Pakistan*. National Nematological Research Centre, University of Karachi, Karachi, 179 pp.
3. **Shahina, F.,** K. Firoza and S. Shahzad (2002). *Proceedings of the National Symposium on* Nematology. National Nematological Research Centre, University of Karachi, Karachi, 160 pp.
4. **Shahina, F.,** K. Firoza and M. H. Soomro (2005). *Proceedings of International Symposium on Biodiversity of nematodes in Pakistan*- 17-19 April, 2004. *Pak. J. Nematol*., 23 (1): 1-189.
5. Bhatti, M. I., K. Firoza and **F. Shahina** (2005). *Bio-control of mango fruit fly by entomopathogenic nematodes*. National Nematological Research Centre, University of Karachi, Karachi. Pakistan Agricultural Research Council, Islamabad, Agricultural Linkages Programme (ALP) 16 pp (Urdu version).
6. Firoza, K., **F. Shahina** and M. H. Soomro (2007). *Proceedings of "Six$^{th}$ National Nematological Conference in Pakistan and Workshop on Integrated Nematode Disease Management (INDM) in some cereals, fruit and vegetables of Pakistan*, 25-27 April. 2006. *Pak. J. Nematol*., 25 (1): 1-122.
7. **Shahina, F.,** A. R. Kazmi and K. Firoza (2009). *Proceedings of 10$^{th}$ Nematological Event: International Symposium on Nematology in Pakistan*. *Pak. J. Nematol*., 27 (2): 129-407.
8. **Shahina, F.** and J. Salma (2012). Biological control of root-knot nematode of tomato (*Solanum lycopersicum* L.) 16 pp (Urdu version).
9. **Shahina, F.** and G. Mehreen (2012). Biological control of root-knot nematode of okra (*Abelmoschus esculentus* L.) 13 pp (Urdu version).
10. Zarina, B. and **Shahina, F.** (2013). *Annotated Bibliography on Plant Nematology in Pakistan.* National Nematological Research Centre, University of Karachi, Karachi, 850 pp.

**Book Chapters**

**International**

1. **Shahina Fayyaz,** Salma Javed, Christos I. Rionbos and Christos I. Athanssion (2017). Control of Stored Grain Pest by Entomopathoogenic Nematodes. pp 208-222. In: *Biocontrol Agents, Entomopathogenic and Slug parasitic Nematodes* (Eds.) M. M. Elagawad, Tariq, H. A. and James, C. CABI International. pp 629.
2. **Shahina Fayyaz,** Firoza Kazi and Tabassum Ara Khanum (2017). Status of Entomopathogenic nematodes in Integrated Pest Management Strategies in Pakistan. pp 383-408. In: *Biocontrol Agents, Entomopathogenic and Slug parasitic Nematodes* (Eds.) Elagawad, M. M., Tariq, H. A. and James, C. CABI International, 629 pp.

**National**

3. **Shahina, F.,** K. Firoza and K. A. Tabassum (2014). Nematode Fauna of Pakistan. pp. 117-128. In: *Biodiversity of Pakistan* (Eds.) Rafique, M., Khalil, I. A., Hasan S. A. and Mahmood, K. Pakistan

Museum of Natural History, Pakistan Science Foundation and Ministry of Science and Technology 509 pp.

4. **Shahina, F.** and G. Mehreen (2014). A geographical survey of endemic entomopathogenic nematode (Steinernematidae and Heterorhabditidae) as inferred from ribosomal DNA sequence of the ITS1-5.8S-ITS2 region from Pakistan. pp. 479-. In: *Biodiversity of Pakistan*. (Eds.) Rafique, M., Ibupoto, K. A., Hasan, S. A. and Mahmood, K. Pakistan Museum of Natural History, Pakistan Science Foundation, Ministry of Science & Technology, pp 509.

**International Research Papers**

1 Maqbool, M. A. and **F. Shahina** (1984). Description of *Leipotylenchus amiri* n. sp. (Nematoda: Tylenchida) from Pakistan. *Revue Nematol*., 7 (4): 363-365.

2 Maqbool, M. A. and **F. Shahina** (1985). *Criconemella anastomoides* n. sp. (Nematoda: Criconematina) from Pakistan. *J. Nematol*., 17(2): 236-239.

3 Maqbool, M. A. and **F. Shahina** (1985).Two new species of the genus *Ottolenchus* Husain & Khan, 1967 (Nematoda: Tylenchidae) with a key to the species and observation on *O. facultativus* (Szczygiel, 1969) Brzeski, 1982 from Pakistan. *Revue Nematol*., 8(4): 329-333.

4 Maqbool, M. A. and **F. Shahina** (1986). Four new species of the family Hoplolaimidae (Nematoda) with notes on *Rotylenchus cypriensis* Antoniou, from Pakistan. *Nematol. Medit*., 14: 117-128.

5 Maqbool, M. A. and **F. Shahina** (1986). New species of cyst nematode *Heterodera pakistanensis* (Nematoda: Heteroderidae) attacking wheat in Pakistan. *J. Nematol*., 18 (4): 541-548.

6 Lamberti, F., M. A. Maqbool, **F. Shahina** and A. Agostinelli (1987). Occurrence of *Xiphinema* species in Pakistan (Nematoda: Dorylaimida). *Nematol. Medit*., 15: 145-148.

7 Maqbool, M. A. and **F. Shahina** (1987). Nematodes of northern areas in Pakistan. Description of *Nagelus saifulmulukensis* n. sp. and *Merlinius montanus* n. sp. (Nematoda: Meriliniinae) with notes on three species of *Tylenchorhynchus* Cobb, 1913. *Revue Nematol*., 10(3): 289-294.

8 Maqbool, M. A. and **F. Shahina** (1988). Nematodes of northern areas in Pakistan *Heterodera bergeniae* sp. n. (Nematoda: Heteroderidae), a parasite of *Bergenia ciliata*. *Revue Nematol*., 11(2): 121-127.

9 Golden, A. M., M. A. Maqbool and **F. Shahina** (1988). Redescription of *Heterodera fici* (Nematoda: Heteroderidae) with SEM observations. *J. Nematol*., 20 (3): 381-391.

10 Maqbool, M. A. and **F. Shahina** (1989). Nematodes of northern areas in Pakistan. Description of *Neothada major* n. sp., and *Pratylenchoides maqsoodi* n. sp. (Nematoda: Tylenchina). *Revue Nematol*., 12(2): 211-216.

11 **Shahina, F.** and M. A. Maqbool (1989). *Heterodera cynodontis* n. sp. (Nematoda: Heteroderidae) from *Cynodon dactylon* (L.) in Pakistan. *Revue Nematol*., 12(4): 395-400.

12 **Shahina, F.** and M. A. Maqbool (1990). Distribution of corn cyst and cereal cyst nematodes in Pakistan. *Int. Nematol. Network Newsl*., 7(3): 38-40.

13 **Shahina, F.** and M. A. Maqbool (1990). Effects of different inoculum levels of *Heterodera zea* on *Zeae mays* and *H. avenae* on *Hordeum vulgare*. *Int. Nematol. Network Newsl*., 7(3): 43-44.

14 **Shahina, F.** and M. A. Maqbool (1991). Description of three new species of the genus *Ogma* Southern, 1914 (Nematoda: Criconematidae) from Pakistan. *Revue Nematol*., 14(2): 231-249.

15 **Shahina, F.** and M. A. Maqbool (1991). Redescription of *Heterodera mothi* Khan and Husain, 1965 (Nematoda: Heteroderidae) with SEM observation. *Afro Asian J. Nematol.*, 1(2): 174-179.

16 **Shahina, F.,** J. Rowe and M. A. Maqbool (1993). Further details and SEM observations on

*Heterodera cynodontis* Shahina & Maqbool, 1989 (Nematoda: Heteroderidae). *Fundam. Appl. Nematol*., 16(6): 573-575.

17 **Shahina, F.** and M. A. Maqbool (1993). *Pakcriconemoides anastomoides* (Maqbool & Shahina) gen. n., comb. n., *Criconemoides afghanicus* sp. n., and *Macroposthonia curvata alpina* sub sp. n., (Nematoda: Criconematidae). *Afro Asian J. Nematol*., 3(2): 188-195.

18 **Shahina, F.** and M. A. Maqbool (1994). Description of *Filenchus sindhicus* sp. n. and observations on three known species (Nematoda: Tylenchidae) on banana in Pakistan. *Nematologica*, 40(1): 69-77.

19 **Shahina, F.** and D. J. Hunt (1995). A compendium of the genus *Seinura* Fuchs, 1931 (Nematoda: Aphelenchida). *Afro-Asian J. Nematol*., 5 (2): 169-177.

20 **Shahina, F.** and M. A. Maqbool (1996). Two new species of the genus *Radopholus* Thorne, 1949 (Nematoda: Pratylenchidae) from Pakistan. *Fundam. Appl. Nematol*., 19(3): 289-292.

21 **Shahina, F.,** D. J. Hunt and M. R. Siddiqi (1996). Three new species of *Aulolaimus* de Man, 1880 (Chromadorida: Aulolaimidae). *Afro Asian J. Nematol*., 6 (1): 78-84.

22 **Shahina, F.** and D. Paul (1996). Two new species of Cephalobidae (Nematoda: Rhabditida) from valle de la Luna, Argentina. *Fundam. Appl. Nematol*., 20 (4): 329-347.

23 **Shahina, F.,** M. Anis, A. P. Reid, J. Rowe and M. A. Maqbool (2001). *Steinernema pakistanense* sp. n. (Rhabditida: Steinernematidae) from Pakistan. *Int. J. Nematol*., 11(1): 124-133.

24 Anis, M., **F. Shahina,** A. P. Reid and J. Rowe (2002). *Steinernema asiaticum* sp. n. (Rhabditida: Steinernematidae) from Pakistan. *Int. J. Nematol*., 12 (2): 220-231.

25 **Shahina, F.** and K. Firoza (2003). Status of Nematology in Pakistan. 222-241 pp. In: *Building Capacity in Biodiversity Information Sharing*, 2003(Ed.) Junko Shimura. Proc. Building Capacity in Asia and Oceania, 4-10 October, 2003, Tsukuba, Japan.

26 Zarina, B., M. R. Siddiqi and **F. Shahina** (2004). *Bitylenchus microcephalus* sp. n. and *B. maximus pakistanensis* sub sp. n. (Nematoda: Telotylenchidae). *Int. J. Nematol*., 14 (1): 85-90.

27 Siddiqi, M. R. and **F. Shahina** (2004).*Geomonhystera karuni* sp. n. and *G. dubia* sp. n. (Nematoda: Monhysterida) from Karachi, Pakistan. *Int. J. Nematol.*, 14 (2): 169-173.

28 Tabassum, K. A., **F. Shahina** and M. R. Siddiqi (2005). Description of *Lordellonema subannulatum* sp. n., *Poronemella divulgata* sp. n. and *Moshajia teres* sp. n. (Dorylamida: Lordellonematinae). *Int. J. Nematol*., 15 (2): 163-168.

29 Javed, N., S. R. Gowen, M. Inam-ul-Haq, K. Abdullah and **F. Shahina** (2007). Systemic and persistent effect of neem (*Azadirachta indica*) formulation against root-knot nematodes, *Meloidogyne javanica* and their storage life. *Crop Protection*, 26: 911-916.

30 Azmat, R., **F. Shahina** and K. Nasira (2007). Nematode parasites of fish as an indicator of pollution of sea. 70-75 pp. In: *Proceeding of the Environment & Green Chemistry Symposium* August 23 -25, 2007. 12th Asian Chemical Congress (Eds) Lee Yong Heng, Wong Ling Shing.

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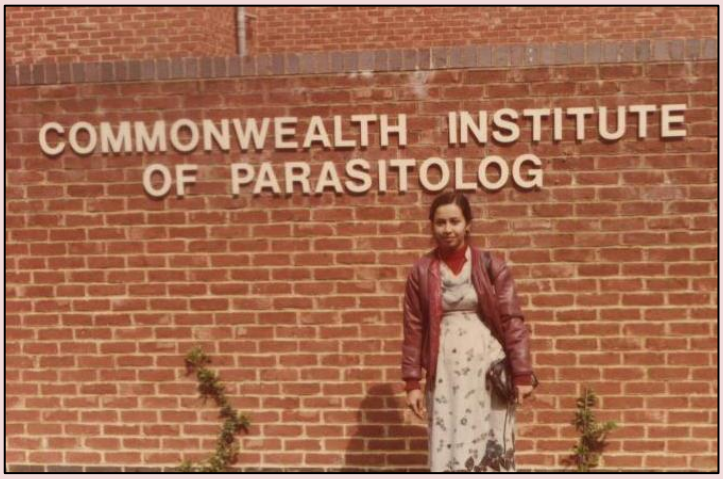
**Several articles are in publishing process**

Working at NNRC Lab as Research Fellow, 1981

Working as Research Officer at NNRC, 1982

With Dr. M. R. Siddiqi and Dr. M. S. Jairajpuri at CIP England, UK, 1983




CIP England, UK, 1983

With Dr. A.M. Golden on Cyst nematodes at USDA, Maryland, USA, 1983

US-PAK International Workshop, 6-8 April, 1986

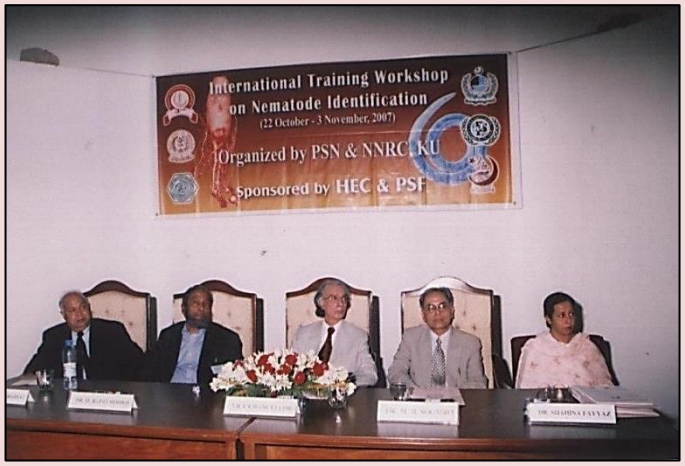
Second International Meeting on Plant Nematology, 1992

Scottish Crop Research Institute, Dundee, Scotland, 1996

International Symposium on Biodiversity of Nematode Fauna in Pakistan, 2004

SACNET Formulation Workshop, Bio-net International, Dhaka, Bangladesh, 2003

6th National Nematological Conference & Workshop, 2006



International Training Workshop, NNRC, 2007

Guangzhou, China for the training of Molecular Identification of EPNs, 2009

11th Nematological Event, 2010

Inauguration of new wing of EPN in NNRC, 2010

International Workshop on Biological control of RKN, 2012

13th Nematological Event, 2014

6th International Conference on Plant Health for Sustainable Agriculture, Multan, 2017

5th International Workshop on Capacity Building in Nematology, 2018

Appreciation shields on retirement, 2019

**PROF. DR. SHAHINA FAYYAZ**
**(4th April, 1959 - 20th March, 2020)**

**CONDOLENCE MESSAGAES**

I am Zafar Ahmad Handoo, working for USDA, ARS at Beltsville, Maryland. I first met Dr. Shahina back in 1981 when she visited our then USDA, ARS, Nematology Lab. Since then I know Dr. Shahina as a colleague and have reviewed several of her student's Ph. D thesis.

It was such devastating and shocking news I first came across on March 21, 2020 through our Society of Nematologists about passing away of Dr. Shahina Fayyaz. Later, on March 26, through Dr. Manzoor Soomro Sahib we received a detailed condolence message followed by an obituary on April 9 to publish in various Journals. I also received on April 6, message from Ms. Safia Siddiqi about her passing away as well! It was not that long ago in March 2020, when she asked my permission for sending my name to the higher authorities of University of Karachi for the review of one of her Ph. D student's thesis.

Certainly, we all belong to Allah and to him we shall return! She was such a wonderful person and excellent nematologist who contributed so much to nematology especially to science in general throughout the world. May Allah give her the highest place in Jannah and give all the family, friends and colleagues courage at this difficult time to bear her loss. She will be missed. Rest in Peace! - Aameen.

With best regards,

**Dr. Zafar Handoo**
**Mycology and Nematology Genetic Diversity**
**and Biology Laboratory, USDA, ARS,**
**Beltsville, MD 20705, U.S.A.**
**zafar.handoo@ars.usda.gov**

This is indeed sad news. She was a lovely person and a fine nematologist.

**Dr. David Hunt**
**Editor-in-Chief**
**Nematology**

The sadden demise of Prof.Dr. Shahina shocked me. It is a great loss to Nematology which is difficult to fill in. May Allah grant her Jannatul Al-Firdous. Ameen

**Dr. Tariq Hassan Askary,**
**Faculty of Agriculture, Wardura (SKUAST-K)**
**Jammu& Kashmir**
**India**

Dear Nematologists,

Deepest condolences for the untimely passing away of Dr Shahina Fayyaz, the outstanding Nematologist and Editor, kind personality, making her great contribution to Pakistan and world nematology and systematics. I remember her personally as very enthusiastic and highly creative and successful researcher. Rest in Peace,

**Alexander and other Russian Nematologists**
**Dr. Alexander Y. Ryss**
**Zoological Institute**
**Russian Academy of Sciences**
**St Petersburg 199034, Russia**

I write to condole with you on the passing of Dr. Shahina Fayyaz. Please kindly accept my heartfelt condolence. I wrote to her on the possibility of my postdoctoral research at NNRC Pakistan under TWAS programme and she responded that she has retired but promised to look out for someone who could give me an acceptance letter for postdoctoral research at NNRC. Her passing is bad news to me. May Allah be with us all.

**Dr. (Mrs) Fabiyi, Oluwatoyin Adenike**
**Department of Crop Protection and Environmental Biology,**
**University of Ibadan, Ibadan,**
**Nigeria**

I am shocked at hearing that Prof Shahina passed away. It is a great loss to Nematology which is difficult to fill in. May Allah accept her at the paradize in the day hereafter and grant her Jannatul Al-Firdous. Ameen.

**Prof. Dr. Mahfouz M. M. Abd-Elgawad**
**Nematology Laboratory,**
**Department of Phytopathology National Research Center El-Tahrir St.,**
**Dokki 12622, Giza, Egypt**

People who serve the nation and community are always remembered and cherished by their countrymen. Prof. Dr. Shahina Fayyaz was one of such personalities who returned to her heavenly abode on March 20, 2020. May her soul rest in eternal peace. She made a great name in the field of Nematology and worked for this discipline for about 38 years. She was always available for her valuable advice, discussions and guidance. In this way, she helped and guided countless people including undergraduate and postgraduate students, academics, researchers, extension workers and farmers. Prof. Shahina was a kind, benevolent, gracious, benign and thoughtful lady of great generosity, forbearance and endurance. She also assisted many of her staff members and students overcome their personal problems. She was known and loved for being a great teacher and caring human being as well as an outstanding conversationalist. For her contributions and efforts in the development of the discipline of Nematology, she was awarded many times the highest honors. She was so enthusiastic that even after her retirement; she continued to work for Nematology instead of facing fatal disease.
She will remain in our hearts for her love, compassion and support and will never be forgotten.

**Prof. Dr. Tariq Mukhtar**
**President**
**Pakistan Society of Nematologists**

Indeed Prof. Dr. Shahina Fayyaz was bold, generous, hardworking, visionary scientist in the nematology. Big loss of the country, difficult to fill gap! May Allah rest her soul in peace.

**Dr. Muhammad Ismail Bhatti**
**Botanical Sciences Division**
**Pakistan Museum of Natural History/Pakistan Science Foundation**
**Ministry of Science and Technology, Islamabad**

It is a shocking news - though being Muslim we all belive that none of us is immortal but there re certain people whom you never think that they will be gone .....she is one of them. I remember my first interaction with her - of course at a Nematology related event. If someone will write the history of nematlogy in the country that will not be completed without mentioning her. We have so many excellent scientists, nematologists and good people around but the way she undertook nematology upon herself was no match. I can only feel how my friends and colelagues at NNRC would be feeling and going through as the centre feels incomplete without her. Even for me i felt odd in mylast visit when she was not around there. Let us join hand to pary for her that Allah Almighty place her in the highest places of Jannah .....
With heavey heart .....

**Dr. Munawar Raza Kazmi**
**Australian Centre for International Agricultural Research,**
**Auslralian High Commission,**
**Islamabad**

A great loss. May Allah bless her soul with eternal peace and rest in Jannah. We all lost a very dedicated worker, a helping individual who have contributed enormously to the science of Nematology not only in Pakistan but at International level. Please continue praying for her.

**Dr. Anjum Munir**
**Crop Diseases Research Institute, National Agricultural Research Centre,**
**Islamabad, Pakistan**

May her soul rest in peace. In February 2018, the first time I met her in person. I found her having a good heart and pure soul. She was active more than many young people, extremely cooperative and caring for everyone.
May Allah bless her eternal rest.

**Dr. M. Shahzad Anjam**
**IMBB, BZU**
**Multan**

Heart goes to blood tears when heard about sad demise of a greatest scientist and Nematologist of Pakistan, Professor Dr Shahina Fayyaz has passed away last night. إِنَّا لِلَّهِ وَإِنَّـا إِلَيْهِ رَاجِعُونَ. May Almighty Allah rest her soul in eternal peace at heaven, Ameen. She contributed excellent in the field of Nematology in Pakistan and globally. She earned a big name in life, proud for Pakistan.May Allah Almighty grant her highest place at Jannat-ul-Firdos.Aameen.Never forget to you respected Maam, never…never

**Dr. Sheikh Saddam**

**Uthal University, Lasbella**

It feels heavy on heart to know that Prof Dr Shahina Fayyaz has passed away last night. إِنَّا لِلّٰهِ وَإِنَّـا إِلَيْهِ رَاجِعُونَ.
May Allah SWT rest her soul in eternal Peace, Ameen! She was a big name in Nematology and a very nice person. Her services in the field are numerous and will be remembered for long.My prayers are for her departed soul and sympathies with the bereaved family.May Allah grant her Jannatul firdos.

**Dr. Farman Ali**
**AWKU,Mardan**

It is really a huge loss for nematology discipline worldwide and especially for Pakistan. However, she might be very satisfied while leaving the world that she has made her wonderful and sincere contribution to the science of nematology. Met her for the first time at Karachi nematology capacity building workshop where she invited me as speaker and trainer. She was so kind and caring for everybody. Additionally, she was a real inspiration for all the students and young scientists like me working in the discipline of nematology.I doubt that her place can be ever be filled again for this discipline.
I pray that may her soul rest in eternal peace and the highest ranks in Jannah.
Best regards,

**Dr. M. Amjad Ali**
**UAF, Faisalabad**

It is with great sadness that we inform you of the passing of Dr. Shahina Fayyaz, Professor of Nematology at National Nematological Research Centre, Karachi.
إِنَّا لِلّٰهِ وَإِنَّـا إِلَيْهِ رَاجِعونَ
Dr. Shahina Fayyaz had been a renowned nematologist & this is an irreparable loss for the country and her family.
May her soul rest in peace, Ameen!

**Dr. Amjad Shahzad Gondal**
**PMAS Arid Agriculture University Rawalpindi**

Really, it is a very terrible to hear about the sad demise of a greatest scientist, teacher, mentor, caring, hard workers, dedicated personality Prof Dr Shahina Fayyaz has passed away last night. إِنَّا لِلّٰهِ وَإِنَّـا إِلَيْهِ رَاجِعُونَ. May almighty Allah rest her soul in eternal peace at heaven, Ameen.
"Death can never take a good person away, for, in the hearts of the people she inspired, the legacy remains and continuous throughout generations".She contributed excellent in the field of Nematology in Pakistan and globally. She earned a big name in life, proud for Pakistan.In this sorrowful time, I would like to extend my heartfelt condolences with her family to bear this tragic loss.May Allah sain grant her highest place at Jannat-ul-Firdos.Aameen.
Prayers

**Dr. Ashfaque Ahmed Nahiyoon**
**CABI, Pakistan**

Words may not suffice to express the deepest sorrow that I feel on demise of the eminent Nematologist Prof.Dr. Shahina Fayyaz. With a heavy heart, I pray for her eternal repose. Her services will always be inscribed in the history of University of Karachi. Her endeavors for the development and strengthening of National Nematological Reasearch Centre will always be appreciated. "A person that departs from this earth never truly leaves, for they are still alive in our hearts, through us, they live on".

**Dr. Saboohi Raza**
**Department of Agriculture and Agribusiness Management**
**University of Karachi**

Please join us in prayers as we extend our deepest condolence on the loss of sad demise of our dear Prof. Dr. Shahina Fayyaz, Ex-Director of National Nematological Research Centre, University of Karachi. We cannot believe you are no longer with us. Words fall short of expressing our sorrow and grieve for your loss.
Prof. Dr. Shahina Fayyaz was a great scientist and patriotic nematologist. She made great contributions for the development of nematology in Pakistan, especially to the success of NNRC are immense and will always be cherished. Her courage and persistence with her brilliance and humor inspired people across the world. She accepted challenges no matter how demanding the underlying task was and was always willing to go out of the way to help, assist and guide friends, colleagues and students no matter how difficult it looked.
The demise of Prof. Dr. Shahina Fayyaz has left a huge hole in all our lives which may ever be filled. The office won't ever be the same without her. She had a tremendous impact on all who got to know her. A loved one passing is never so

easy.We shall ever miss her with all our hearts. May Allah rest her soul in peace and give her family and friends the fortitude to bear her loss. Please accept our heartfelt condolence.

**Dr. Nasira Kazi & Dr. Firoza Kazi**
**NNRC, UOK**

"Inna lilahe Wa Inna Elahe Rajaoon""I sadden at Madam Shahina Fayyaz leaving us all. Madam had made very significant contribution in strengthening of nematology. She certainly was an outstanding figure and did so much to introduce nematodes to scientists in Pakistan and worldwide. It is a difficult time for all students of madam to disremember each and every word she teaches us in every aspect of life. She is very careful and warm-hearted person Madam I really miss you and pray for you in every step. You forever remain with me. Words can't explain my grieve.

**Dr. Salma Javed**
**NNRC, UOK**

It is shocking news that Prof Shahina Fayyaz passed away. It is a huge loss to Nematology which is difficult to fill in. May Allah bless her soul and grant her Jannatul Al-Firdous. Ameen.

**Dr. Tabassum Ara Khanum**
**NNRC, UoK**

My most sincere condolence and deepest sympathy to all members of Pakistan Society of Nematologists, university fellows, researchers and academicians on the big loss of Maam Shahina. Words fall short to describe my greif on the loss of my teacher. She was a great mentor to all of us and her passing will never take away the legacy she left with us. She flourished NNRC as her child and loved to work for its betterment. She always said that "NNRC is our recognition". She said' I make plans only for NNRC", it was her total universe. I truly feel blessed and honored that Maam Shahina was a part of my life. May Allah grant her Jinnat-ul-Firdous. Ameen!

**Dr. Erum Iqbal**
**NNRC, UoK**

# *PSN NEWS LETTER*

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