

IN MEMORIAM

MING-HO YU, PhD: AN EXPERT ON ENVIRONMENTAL POLLUTION AND TOXICOLOGY 1928–2020

A TRIBUTE TO A SCIENTIST OF INTEGRITY

It is with sadness that we record that Ming-Ho Yu, a long servicing officer of the International Society for Fluoride Research (ISFR) died on March 17, 2020 from heart failure at the age of 91 years. Dr. Yu held the positions of Second Vice President (1986–1990), Vice President (1991–1993), President (1994–1996), and Secretary (2003–2005). He chaired the Organizing Committee for the XXIIInd Conference of the ISFR at Bellingham, Washington, USA, August 24–27, 1998, and worked diligently as a member of the Editorial Board (1986–1997) and as an Associate Editor of *Fluoride* (1998–2020).



Photo courtesy of Mrs Christy Yu Austin
Professor Ming-Ho Yu
May 22 1928–March 17 2020

I first met Ming-Ho at the Bellingham conference where he and his wife Ervena were kind and gracious hosts. In writing several books and many papers, including co-authoring with Wayne Landis the textbook *Introduction to environmental toxicology*, and holding many positions in the ISFR, Dr Yu shared many characteristics with the first editor, in 1968, of *Fluoride* and Secretary of the ISFR, Dr George Waldbott (1898–1982) whose publications included, in 1978, the book *Health effects of environmental pollutants*.

Dr Yu was a widely respected scientist of integrity whose knowledge about environmental pollution and health included a sound understanding of the toxicology of fluoride. He will be missed.

Bruce Spittle
Editor-in-Chief, *Fluoride*, Dunedin, New Zealand.

A TRIBUTE TO A QUIET HUMBLE GIANT WITH AN INQUISITIVE MIND WHO LOVED HIS STUDIES

Dr. Ming-Ho Yu passed away peacefully on March 17th, 2020 in his home in Bellingham, surrounded by his family. Dr. Yu was 91. Born May 22nd 1928 in Taiwan, he received his B.S. degree from the highly accredited National Taiwan University in Taipei. Honored with a Fulbright Scholarship, he left Taiwan to attend Utah State University on August 8th 1962, leaving behind his wife, Ervena, his sons Albert (6), Charlie (1), and his daughter Christina (4). Ervena joined him a year later in Logan, Utah. Upon graduation with his M.S. then Ph.D in Plant Nutrition & Biochemistry, he worked with Dr. Gene Miller at Utah State and was able to bring his three children over on May 28th, 1968. Dr. Miller, then the newly hired Dean of Huxley College of the Environment for Western Washington University (WWU) brought Ming to help start the

new college in Bellingham in August of 1969. Together, the two put together the curriculum and helped open the college for WWU. Dr. Yu taught various topics including air pollution, nutrition, toxicology, and effects of fluoride. He wrote many papers and also wrote and co-authored many text books which are still being used today. He joined the International Society for Fluoride Research, became an Associate Editor for its journal, *Fluoride* (1998–2020), and served in the positions of Second Vice President (1986–1990), Vice President (1991–1993), and President (1994–1996). He traveled the world extensively with his beloved wife. He hosted the 22nd ISFR Conference in 1998 in Bellingham with close to 200 international members attending. Dr. Yu was also listed in Who's Who in America for his work and enjoyed tea with the First Lady, Mrs. Nixon at the White House. In addition, he was invited by the Kuwait government to set up its fresh water system. In the late 1970's he was one of the 200 professionals and scholars invited by the President of Taiwan to assist in the development of modern Taiwan and its programs. He retired as a Professor Emeritus from WWU after 27 years. Today, there is a Dr. Ming-Ho Yu Award given to the highest honored toxicology student at Huxley. Dr. Ming-Ho Yu is survived by his wife Ervena of 67 years, his son, Dr. Albert Yu with his grandsons Dylan and Jordan, his daughter Christy Yu Austin with his grandson Nick, granddaughter Missy, and grandson-in-law Jess, and his son Charlie Yu, with wife Colette, and granddaughters Amanda, Chantell, and Claire. He lived a full amazing life, was loved deeply by his family, and will be missed.



Photo courtesy of Professor Masashi Tsunoda
Mrs Ervena and Professor Ming-Ho Yu visiting
Taiwan, January, 1990

A TRIBUTE TO A MENTOR, COLLABORATOR, AND FRIEND

When I arrived in Bellingham and Huxley College in the fall of 1989, Dr. Yu was teaching toxicology as he had since 1969. He and his courses were the foundation of the rebuilding of the program in Environmental Toxicology after a series of turbulent events in the late 1980s and early 1990s. As Professor of Toxicology Ruth Sofield stated, “He is the reason that there was a toxicology program for me to come to at Huxley College.” Thirty years later, in the winter quarter of 2020, the Department of Environmental Sciences still offers a course using a textbook with Dr. Yu as a coauthor, 22 years after his retirement. The outstanding undergraduate student in the Environmental Toxicology and Chemistry program is presented the Ming-Ho Yu Award, another reflection of his long-lived impact and legacy to the College. Personally, he was my mentor and friend as I made the transition from a toxicology laboratory director in the Federal government to academia. His counsel was on point when dealing with the vagaries of Huxley and always encouraging of the course that the Institute was taking.

Professor Yu was born in Taiwan, at that time part of the Japanese Empire. He learned Japanese in school and served briefly, and at a very young age, in the Japanese Army. He received his B. S. degree from National Taiwan University in Taipei in 1953. Later he came to the United States and received a M. S. and Ph. D. in Plant Nutrition and Physiology from the University of Utah in 1967. After his postdoctoral research at



Photo courtesy of Professor Masashi Tsunoda

Professor Ming-Ho Yu presenting a poster *A health survey of employees at an aluminium plant in China II: A biochemical study* at the XVIIth ISFR conference in Budapest, Hungary 1989.

the University of Alberta he began his career at Western Washington University in 1969 and was a member of the Founding Faculty of Huxley College. He was promoted to Professor in 1980 and retired in 1997. Since 1998 he has had the title of Professor Emeritus and was the busiest retired person I have known. Having Mandarin, Japanese, and English as languages, he travelled extensively across the world, especially in Asia, the Middle East, and India. Once I asked him how it was so easy for him to travel from Taiwan, to Japan, and to China and to return again and again? After all, Taiwan and China have not always been on the best of terms. He said that it was because he is an American citizen—and I think that his language skills, his respectful manner, and deep intelligence no doubt helped.

Professor Yu was an accomplished scholar. He was the founding co-editor of the journal *Environmental Sciences*, served as the Associate Editor of *Fluoride* (1998–

2020), and was the President of the International Society for Fluoride Research (1994–1996). His publication record lists 7 books and 55 journal publications, many focusing on fluoride as an environmental contaminant. Fluorosis is a disease of the skeleton brought about by fluoride exposure, often coming from industrial activities such as aluminum smelting. Fluoride contamination is more common in developing economies and Professor Yu was internationally recognized as an expert in the identification and remediation of the impacts.

In the early 1990s, Professor Yu and I had started to consolidate the toxicology courses of Huxley College into the sequence that continues to this day. The textbook Landis and Yu, *Introduction to Environmental Toxicology*, was our attempt to provide a suitable textbook for upperclassmen and first year graduate students. We began the process as separate endeavors, but combined efforts when I mentioned that I already had a publisher. Now the text is in its 5th edition and it has been 25 years since its first publication. The text is often cited as a reference in peer reviewed publications as a primary source. Now that Professor Sofield is a co-author I am looking forward to its continued use as a textbook in our program as well as others across the world.



Photo courtesy of Professor Masashi Tsunoda
Attendees at the XIIIth ISFR conference, New Delhi, India, in 1983.
Front row from left: Dr Mitsuru Tsuchida, Mrs Ervena Yu, Dr Chisato Hamashima, Ms Michiko Matsuda, Dr Masanobu Tatsumi, Professor Humio Tsunoda, Professor Ming-Ho Yu.

Professor Yu is still admired. Since 2005 the Institute of Environmental Toxicology and Chemistry has presented the Professor Ming-Ho Yu Award to the best undergraduate in Environmental Toxicology and Chemistry of the year. The awardee is selected by the faculty in Environmental Toxicology and there is no formal application process. The criteria are both having an outstanding undergraduate career and showing promise for a continued graduate education, and career in the field. In some years two awards are made. The students receive an engraved plaque and their name is added to the list displayed in the Institute. After 15 years it has been a delight to see the advancement of these students into the field with many of them now colleagues.

I am proud to call Professor Yu a mentor and collaborator. His legacy already is secure, both at the College and across the Pacific Rim.

Wayne Landis, Professor of Environmental Science,
Western Washington University, Bellingham, Washington, USA

A TRIBUTE TO A DEDICATED RESEARCHER AND ACCOMPLISHED SCHOLAR

Professor Emeritus Ming-Ho Yu was an Associate Editor of *Fluoride* (1998–2020) and the President of the ISFR (1994–1996). He devoted himself to developing the environmental toxicology program at Huxley College of the Environment, one of the seven colleges which constitute Western Washington University, and wrote many publications focusing on fluoride as an environmental contaminant. The Ming-Ho Yu Award for the Best Outstanding Student in Environmental Toxicology was created in 2005. The scholarship fund was renamed the Ming-Ho Yu Environmental Toxicology Scholarship Fund in May 2020. He was a dedicated researcher, and accomplished scholar. Let's always remember him.

Professor Jundong Wang

Shanxi Key Laboratory of Ecological Animal Science and Environmental Medicine

Shanxi Agricultural University

Taigu, Shanxi, Peoples' Republic of China

A TRIBUTE TO A TRUE FRIEND OF OUR FAMILY AND AN INTERNATIONAL SCIENTIST

I was very sorry to hear the news that Professor Ming-Ho Yu passed away on March 17, 2020. Professor Yu and his wife, Mrs. Ervena Yu, were longtime friends of my father, the late Professor Humio Tsunoda, Iwate Medical University, Japan, and our family. Professor Yu and my father played an important role in the ISFR over a long period of time as officers and board members. As a memorial note, I would like to comment on how Professor Yu worked as a researcher on fluoride, especially on his special relationship with my father.



Photo courtesy of Professor Masashi Tsunoda

Professor Ming-Ho Yu and Professor Humio Tsunoda in Taiwan,
January 22, 1990.

My father and Professor Yu met for the first time at the XIIth ISFR conference in St. Petersburg, Florida, USA, in May, 1982. My father was looking for a researcher who could speak both English and Japanese well, and Professor Yu was introduced to him. Since then, they had been very good friends and coworkers. As many people knew, Professor Yu's language ability was quite outstanding. I was amazed several times that how much his Japanese had improved every time I saw him. My father was selected as the host for the XIVth Conference of the ISFR. It was held in Morioka, Japan, on June 12–15, 1985, and Professor Yu, as a member of the organizing

committee for the conference, helped my father to manage the conference. When Dr. Tsunoda's wife sadly passed away in July, 1985, Professor Yu supported him with his friendship. They co-edited the book *Fluoride Research 1985, selected papers from the 14th conference of the International Society for Fluoride Research, Morioka, Japan, 12-15 1985*, as volume 27 in the series *Studies in environmental science* published by Elsevier in 1986. The book consisted of 47 papers which were based on presentations at the conference, and published in memory of Mrs. Tsunoda.

In June, 1989, Professor Yu attended to the XVIIth conference of ISFR at Budapest, Hungary which was hosted by Dr. Miklos Bély. Professor Yu and Mrs. Yu, Professor Tsunoda and his daughter, Sawako, and the members of Department of Hygiene and Public Health, Iwate Medical University, Professor Tsunoda's department enjoyed a tour after the conference which included Hungary and Moscow, USSR.



Photo courtesy of Professor Masashi Tsunoda
Dr Masanobu Tatsumi, Professor Ming-Ho Yu, Professor Humio Tsunoda, and Mrs Ervena Yu in Moscow, USSR, June 30, 1989, after attending the XVIIth ISFR conference in Budapest, Hungary, in 1989.

For nine months, from September 9th, 1989 to June 3rd, 1990, Professor Yu and his wife, Ervena, stayed in Morioka, Japan, where Professor Yu was a Visiting Professor of the Department of Hygiene and Public Health, Iwate Medical University. Sharing both studying and friendship, these were good days for Professor Tsunoda and his family, including me. The international experience that Professor Yu brought was also quite a precious opportunity for the members of the Department.

After the visiting professorship ended, Professor Yu and Professor Tsunoda continued their friendship. In January, 1990, together with my father, Professor and Mrs Yu visited Taiwan where Professor Yu originally came from. Professor and Mrs Yu regularly attended the conferences of the ISFR and in August, 1998, Professor Yu hosted the XXIIInd ISFR conference in his home city, Bellingham, Washington, USA. It was honor for me to attend to this conference with my father.

In 2000 CRC Press, published the first edition of Professor Yu's textbook *Environmental toxicology: Biological and health effects of pollutants*. When the third edition of the book was published in 2011, my father and I were added as coauthors. It was a great honor for me to be one of the coauthors with Professor Yu.

Professor Yu supported my father a lot. His language ability helped my father during their various activities as Board members of the ISFR. I still remember that when my father met Professor Yu in USA, an expression of peace came over his face. For me, Professor Yu was a role model of a scientist and friend and I keep making an

effort to be a person like him. He and Mrs. Yu have been good friends for our family members for over 30 years. I now express my sincere gratitude to Professor Yu.

Masashi Tsunoda, MD, PhD.
Professor, Department of Preventive Medicine and Public Health
National Defense Medical College, Tokorozawa, Saitama, Japan
Co-secretary International Society for Fluoride Research



Photo courtesy of Professor Masashi Tsunoda

Attendees at the XIXth ISFR conference, Kyoto, Japan, on September 8, 1992.
From left: Dr Miklos Bély, _____, Professor Humio Tsunoda, Professor Gene Miller,
Professor Ming-Ho Yu, Dr Yasumasa Yoshida.



Photo courtesy of Professor Masashi Tsunoda

Attendees at the XIXth ISFR conference, Kyoto, Japan, on September 8, 1992.
From left: Professor Koichi Kono, _____, Dr Miklos Bély, Dr Yasumasa Yoshida, Professor
Humio Tsunoda, Professor Ming-Ho Yu.

ACADEMIC RECORD OF MING-HO YU

EDUCATION:

Ph.D. Plant Nutrition and Biochemistry, Utah State University, 1967; M.S. Plant Nutrition and Biochemistry, Utah State University, 1964; B.S. Agricultural Chemistry, National Taiwan University, 1953.

MAJOR RESEARCH INTERESTS:

Environmental pollution and health; biological effects of environmental fluoride and metals; biochemical toxicology; plant toxicology.

PROFESSIONAL EXPERIENCES:

Professor Emeritus, Western Washington University, Bellingham, WA, USA, (1998–2020); Professor, Western Washington University, Bellingham, WA, (1980–1997); Visiting Assistant Professor, Lecturer, Assistant Professor, Associate Professor, Western Washington University, Bellingham, WA, (1969–1980); Honorary Research Fellow, Jiangxi Institute of Labor Hygiene and Occupational Diseases, Nanchang, China, (1994); Visiting Scholar, Institute of Whole Body Metabolism, Chiba, Japan (June–September 1993); Visiting Professor, Iwate Medical University, School of Medicine, Department of Public Health and Hygiene, Morioka, Japan, (September 1983–November 1983 and September 1989–June 1990); Visiting Professor, Department of Biology, Utah State University, Logan, Utah, (February 1982–June 1982); Research Associate, Department of Nutrition and Food Science, Utah State University, Logan, Utah, (June–Aug. 1973). Visiting Assistant Professor, Department of Botany, Utah State University, Logan, Utah, (September 1968–August 1969); Postdoctoral Fellow, Department of Plant Science, University of Alberta, Edmonton, Alberta, Canada, (August 1967–August 1968); Postdoctoral Fellow, Department of Botany, Utah State University, Logan, Utah, (February 1967–July 1967); Graduate Research Assistant, Departments of Botany and Plant Science, Utah State University, Logan, Utah, (1962–1967); Assistant Researcher, Institute of Chemistry, Academia Sinica, Taipei, Taiwan, (1959–1962); and Research Assistant, Taiwan Agricultural Research Institute, Taipei, Taiwan, (1954–1955).

PROFESSIONAL MEMBERSHIPS

American Association for the Advancement of Science, American Chemical Society, American Society for Nutritional Sciences, International Society for Fluoride Research, New York Academy of Sciences, Sigma Xi, and Society of Environmental Toxicology and Chemistry.

COMMUNITY SERVICE

University Level

Huxley College Dean's Advisory Committee, 1969–1970; Graduate Council, 1986–1988; Research Advisory Committee, 1990–1994; Professional Leave Committee, member 1990–1991; Chair 1991–1992, Secretary-Treasurer, Sigma Xi Western Washington University Club, September 1984–1987; and President, Sigma Xi Western Washington University Club, 1988–1989.

International Level

Invited by the Ministry of Public Health, Kuwait, to assess the fluoride problems in drinking water in Kuwait City, August 1978. Invited by the Government of the Republic of China to participate in the National Conference on Development, Public Health Section, July 14–30, 1980. Organizing Committee member, XIVth Conference of the International Society for Fluoride Research, Morioka, Japan, March 20–28, 1985. Organizing Committee member, XVth Conference of the International Society for Fluoride Research, Logan, Utah, July 30–Aug. 2, 1986. Invited to participate in a China-Japan cooperative research project for conducting an epidemiological and clinical study on endemic fluorosis in Guiyang, China, September 20–October 2, 1987. Served as the External Examiner for examining the thesis of M. V. Narayanof, a Ph.D. candidate at Gujarat University, India, 1992. Served as the External Examiner for examining the thesis of Monorama Patri, a Ph.D. candidate at Sambalpur University, India, 1997. Editorial Board Member, *Fluoride*, International Society for Fluoride Research, 1986–2020. Co-Editor, *Environmental sciences - An international journal on environmental physiology and toxicology*, 1990–1999. President, International Society for Fluoride Research, 1994–1996. Associate Editor, *Fluoride: Quarterly Journal of the International Society for Fluoride Research*, 1998–2020. Chairman of the Organizing Committee, XXIIInd Conference of the International Society for Fluoride Research, Bellingham, WA, August 24–27, 1998. International Advisory Committee Member, PAN-Asia Pacific Conference on Fluoride and Arsenic Research, Shenyang, China, August 16–20, 1999. International Advisory Committee Member, XXIIIrd Conference of the International Society for Fluoride Research, Szczecin, Poland, June 11–14, 2000.

JOURNALS FOR WHICH ARTICLES WERE REVIEWED:

Comparative Biochemistry and Physiology, Environmental Health Perspectives, Fluoride, Journal of Environmental Toxicology and Chemistry, Journal of Wildlife Diseases, and Water, Air, and Soil Pollution.

PUBLICATIONS

Books

- 1 Tsunoda H, Yu MH. editors. Fluoride research 1985. Studies in environmental science, Vol. 27, Amsterdam: Elsevier; 1986. pp. 453.
- 2 Landis WG, Yu MH. Introduction to environmental toxicology. Boca Raton, FL, USA: Lewis Publishers; 1994. pp. 328.
- 3 Landis WG, Yu MH. Introduction to environmental toxicology. 2nd ed. Boca Raton, FL, USA: CRC/Lewis Publishers; 1998. pp. 390.
- 4 Yu MH. Environmental toxicology. Boca Raton, FL, USA: CRC/Lewis Publishers; 2000. pp. 240.
- 5 Yu MH, Environmental toxicology: Biological and health effects of pollutants. 2nd ed. Boca Raton, London, New York, Washington, D.C.: CRC Press; 2004. pp. 366.
- 6 Landis WG, Yu MH. Introduction to environmental toxicology. 3rd ed. Boca Raton, FL, USA: CRC/Lewis Publishers; 2004. pp. 484.
- 7 Yu MH, Tsunoda H, Tsunoda M. Environmental toxicology: Biological and health effects of pollutants. 3rd ed. Boca Raton, FL, USA: CRC Press; 2011. pp. 397.

- 8 Landis WG, Sofield RM, Yu MH. Introduction to environmental toxicology. 4th ed. Boca Raton, FL, USA: CRC/Lewis Publishers; 2011. pp. 514.
- 9 Landis WG, Sofield RM, Yu MH. Introduction to environmental toxicology. 5th ed. Boca Raton, FL, USA: CRC/Lewis Publishers; 2018. pp. 470.

Professional journals

- 1 Yu MH, Tseng CP. Amino acid composition of cells of *Bacillus subtilis*. Bull Inst Chem Acad Sinica 1960;2:40-5.
- 2 Yu MH. Effects of ultraviolet irradiation on the growth of *Spondylocladium australe*. Bull Inst Chem Acad Sinica 1960;3:35-43.
- 3 Chen CT, Yu MH. Nitration of alkylbenzenes with methyl nitrate and sulfuric acid. Bull Inst Chem Acad Sinica 1962;6:65-70.
- 4 Dalal KB, Olson LE, Yu MH, Salunkhe DK. Gas chromatography of the field-, glass greenhouse-grown and artificially ripened tomatoes. Phytochem 1967;6:155-7.
- 5 Yu MH, Miller GW. Effect of fluoride on the respiration of leaves from higher plants. Plant & Cell Physiol 1967;8:484-93.
- 6 Yu MH, Olson LE, Salunkhe DK. Precursors of volatile components in tomato fruit - I. Compositional changes during development. Phytochem 1968;6:1457-66.
- 7 Yu MH, Olson LE, Salunkhe DK. Precursors of volatile components in tomato fruit - II. Enzymatic production of carbonyl compounds. Phytochem 1968;7:555-60.
- 8 Yu MH, Olson LE, Salunkhe DK. Precursors of volatile components in tomato fruit - III. Enzymatic reaction products. Phytochem 1968;7:561-5.
- 9 Dalal KB, Salunkhe DK, Olson LE, Do YS, Yu MH. Volatile components of developing tomato fruit grown under field and greenhouse conditions. Plant & Cell Physiol 1968;9:389-400.
- 10 Yu MH, Olson LE, Salunkhe DK. 1968. Production of 3-methylbutanal from L-leucine by tomato fruit. Plant & Cell Physiol 1968;9:633-8.
- 11 Cheng JY, Yu MH, Miller GW, Welkie GW. Fluoroorganic acids in soybean leaves exposed to fluoride. Environ Sci Technol 1968;2:367-70.
- 12 Yu MH, Spencer M. Conversion of L-leucine to certain keto acids by a tomato enzyme preparation. Phytochem 1969;8:1173-8.
- 13 Yu MH, Spencer M. 1970. Alanine aminotransferase from tomato fruit. Phytochem. 9:341-343.
- 14 Yu MH, Miller GW. Gas chromatographic identification of fluoroorganic acids. Environ Sci Technol 1970;4:492-5.
- 15 Yu MH, Miller GW, Lovelace CJ. 1971. Gas chromatographic analysis of fluoroorganic acids in plants and animal tissues. In: Englund HM, Beery WT, editors. Proceedings of the Second International Clean Air Congress [proceedings of a congress held in Washington, DC, USA 1970 Dec 6-11]. Cambridge, MA, USA: Academic Press, an imprint of Elsevier; 1971. pp. 156-8.
- 16 Miller GW, Yu MH, Psenak M. 1973. Presence of fluoroorganic compounds in higher plants. Fluoride 1973;6:203-15.
- 17 Yu MH, Wu MT, Wang DJ, Salunkhe DK. Nonenzymatic browning: Effects of ascorbic acid, amino acids, organic acids, and inorganic salts. Can Inst Food Sci Technol J 1974;7:279282.
- 18 Salunkhe DK, S.J. Jadhav SJ, Yu MH. Quality and nutritional composition of tomato fruit as influenced by certain biochemical and physiological changes. Qualitas Plantarium (later Plant Foods for Human Nutrition) 1974;24:85-113.
- 19 Newman JR, Yu MH. Fluorosis in Black-tailed deer. J Wildlife Dis 1976;12:39-41.

- 20 Psenak M, Miller GW, Yu MH, Hsieh J. Separation of malic dehydrogenase isoenzymes from soybean tissue in relation to fluoride treatment. *Fluoride* 1977;10:63-72.
- 21 Yu MH, Driver CJ. The effect of NaF on the growth and L-ascorbic acid levels in tissues from the domestic chicken (*Gallus domesticus*). *Fluoride* 1978;11:60-7.
- 22 Yu MH, Stoehr M. Serum compositional changes in the chick caused by supplementary fluoride in the diet. [Abstract of a paper presented at the AAAS Annual Meeting, Washington, D.C., USA: 1978 Feb 12-17].
- 23 Yu MH, Stoehr M, Driver CJ. Electrophoresis of serum proteins in growing chicks fed a diet supplemented with NaF. *Fluoride* 1980;13:20-4.
- 24 Yu MH, Driver CJ. Effect of NaF on tissue vitamin C of growing cockerels (*Gallus domesticus*). *Fluoride* 1982;15:97-104.
- 25 Miller GW, Denney A, Pushnik J, Yu MH. 1982. The formation of delta-aminolevulinate, a precursor of chlorophyll, in a barley and the role of iron. *J Plant Nutr* 1982;5:289-300.
- 26 Yu MH, Miller GW. Formation of delta-aminolevulinic acid in etiolated and iron-stressed barley. *J Plant Nutr* 1982;5:1259-71.
- 27 Bennett LW, Miller GW, Yu MH, Lynn RI. Production of fluoroacetate by callus tissue from leaves of *Acacia georginae*. *Fluoride* 1983;16:111-7.
- 28 Miller GW, Yu MH, Pushnik J. Basic metabolic and physiologic effects of fluorides on vegetation. In: R. Shupe JL, Peterson H, Leone N, editors: *Fluorides: Effects on vegetation, animal, and humans*. Salt Lake City, Utah: Paragon Press, Inc.; 1983. pp.83-104.
- 29 Yu MH, Hwang SHL. Influence of protein and ascorbic acid on fluoride-induced changes in blood composition and skeletal fluoride deposition in mice. In: H.Tsunoda H, Yu MH, editors. *Fluoride Research 1985: Selected papers from the 14th Conference of the International Society for Fluoride Research, Morioka, Japan, 12-15 June 1985*. Amsterdam: Elsevier; 2000. pp. 203-10.
- 30 Yu MH, Young R, Sepanski L. Inhibition of lipid metabolism in germinating mung bean seeds by fluoride. *Fluoride* 1987;20:113-7.
- 31 Takagi S, Kamei S, Yu MH. 1988. Efficiency of iron extraction from soil by mugineic acid family phytosiderophores. *J. Plant Nutr* 1988;11:641-51.
- 32 Yu MH, Shumway M, Brockbank A. Effects of NaF on amylase in mung bean seedlings. *J Fluorine Chem* 1988;41:95-100.
- 33 Yu MH, Tsunoda H. Fluoride problems in China. *Fluoride* 1988;21:163-6.
- 34 Yu MH. Essential and toxic elements in human health and disease: Current topics in nutrition and disease. Vol. 18. Ananda S. Prasad AS, editor. [book review]. *Amer J Diet Assn* 1989;89:586.
- 35 Yu MH. Vitamin C by Alan B. Clemetson. CRC Press; 1989, Vol.I, II, III. pp. 814. [book review]. *Amer J Diet Assn* 1990;90:756.
- 36 Yu MH. Diet, nutrition, and cancer. *Iwate J Public Health* 1990;1:2-8. [in Japanese].
- 37 Nozu Y, Yu MH, Tsunoda H. 1991. Utility of the hot-wire spirometer. *Ann Physiol Anthrop* 1991;10:77-82.
- 38 Tsunoda H, Itai K, Sakurai S, Chen FP, Liang F, Yu MH, et al. Health survey of workers of an aluminum plant in China. I. Airborne fluoride levels in work environment and body fluoride burden of workers. *Fluoride* 1991;24:62-5.
- 39 Yu MH, Ma HX, Sakurai S, Tsunoda H, Itai K, Tatsumi M, et al. Health survey of workers of aluminum plant in China. II. Study on blood chemistry. *Fluoride* 1991;24:66-70.

- 40 Tatsumi M, Mu CJ, Liang F, Tsunoda H, Nakaya S, Sakurai S, Itai K, Yu MH, et al. Health survey of workers of an aluminum plant in China. III. Respiratory symptoms and ventilatory functions. *Fluoride* 1991;24:90-4.
- 41 Li YM, Nakaya S, Kudo H, Tsunoda H, Tatsumi M, Sakurai S, Itai K, Ma HX, Chen FP, Yu MH. 1991. Health survey of workers of an aluminum plant in China. IV. X-ray examinations of the skeletal system. *Fluoride* 1991;24:95-9.
- 42 Sakurai S, Yu MH. Further identification of a DFP-hydrolyzing enzyme in plant tissues [abstract]. *Fluoride* 1993;26:217.
- 43 Yu MH, Sakurai S. Diisopropylfluorophosphate (DFP)-hydrolyzing enzymes in mung bean (*Vigna radiata*) seedlings. *Environ Sci* 1995;3:103-11.
- 44 Hara K, Yu MH. Effect of fluoride on human salivary amylase activity. *Fluoride* 1995;28:71-4.
- 45 Yu MH. Effects of fluoride on growth and soluble sugars in germinating mung bean (*Vigna radiata*) seeds. *Fluoride* 1996;29:3-6.
- 46 Chen YX, Lin MQ, He ZL, Xiao YD, Min D, Lin YQ, He ZL, Xiao YD, Min D, Liu YQ, Yu MH. Relationship between total fluoride intake and dental fluorosis in areas polluted by airborne fluoride. *Fluoride* 1996;29:7-12.
- 47 Narita A, Nakamura Y, Shigematsu A, Yu MH. 1996. Fluoride inhibition of [2-¹⁴C] thymidine incorporation into DNA in mung bean seedlings. *Fluoride* 1996;29:72-6.
- 48 Rubin PG, Yu MH. Mercury vapor in amalgam waste discharged from dental office vacuum units. *Arch Environ Health* 1996;51:335-7.
- 49 Itai K, Nohara M, Tsunoda H, Yu MH. Determination of fluoride in human hair by pyrohydrolysis and flow-injection analysis. *Environ Sci* 1997;5:49-56.
- 50 Yu MH. Effects of sodium fluoride on soluble sugars and invertase in germinating mung bean (*Vigna radiata*) seeds. *Environ Sci* 1997;5:121-5.
- 51 Sun GF, Yu MH, Ding GY, Shen HY. 1997. Lipid peroxidation and changes in antioxidant levels in aluminum plant workers. *Environ Sci* 1997;5:139-44.
- 52 Yu MH. Acid invertase from mung bean seedlings exposed to NaF: Partial purification and characterization. *Environ Sci* 1998;6:1-10.
- 53 Wilde L, Yu MH. Yu. Effect of fluoride on superoxide dismutase (SOD) activity in germinating mung bean seedlings. *Fluoride* 1998;31:81-8.
- 54 Ouchi K, Yu MH, Shigematsu A. Responses of mung bean invertase to fluoride. *Fluoride* 1999;32:171-8.
- 55 Yu MH. Nutrition: chemistry and biology by Spallholz JE, Boylan LM, Driskell JA. 2nd ed. CRC Press, 1999. pp. 345. [book review]. *J Amer Diet Assn* 2000;100:854-5.

PRESENTATIONS:

- 1 Gas chromatographic analysis of the tissue extracts from HF-treated soybean plants at the annual meeting of the Pacific Northwest International Section, Air Pollution Control Association, in Spokane, WA, 1971.
- 2 Gas chromatographic analysis of fluoroorganic acids in plant and animal tissues, presented at the 2nd International Clean Air Congress in Washington, D.C., in 1971.
- 3 Vitamin C production in mung-bean sprouts, at the School of Home Economics, University of Washington, 1976.
- 4 The effect of NaF on the L-ascorbic acid levels of tissues from the domestic chicken (*Gallus domesticus*), at the VIIIth annual conference of the International Society for Fluoride Research in Oxford, England, May 1977.
- 5 Serum compositional changes in chickens caused by supplementary NaF in the diet, at the annual conference of the American Association for the Advancement of Science, Feb. 1978.

- 6 Electrophoresis of serum proteins in growing chicks fed a diet supplemented with NaF at the IXth annual conference of the International Society for Fluoride Research held in Fribourg, Switzerland, July 1978.
- 7 A further study on the effects of NaF on tissue vitamin C levels in growing cockerels (*Gallus domesticus*), at the XIth annual conference of the International Society for Fluoride Research held in Dresden, Germany, April 8-10, 1981.
- 8 Production of fluoroacetate by callus tissue from levels of *Acacia georginae*, at the XIIth Conference of the International Society for Fluoride Research, St. Petersburg, Florida, May 16-18, 1982.
- 9 Basic metabolic and physiologic effects of fluoride on vegetation, presented at the International Fluoride Symposium held at Utah State University, May 24-27, 1982.
- 10 Environmental fluoride and its effects on living systems at Iwate Medical University, School of Medicine, Morioka, Japan, Oct. 18, 1983.
- 11 Influence of fluoride on living systems at the Department of Agricultural Chemistry, Iwate University, Morioka, Japan, Oct. 20, 1983.
- 12 Toxicity of NaF to bobwhite quail (*Colinus virginianus*) embryogenesis at the XIIIth Conference of the International Society of Fluoride Research held in New Delhi, India, Nov. 14-17, 1983.
- 13 Influence of protein and ascorbic acid on fluoride-induced changes in blood composition and skeletal fluoride deposition in mice at the XIVth Conference of the International Society for Fluoride Research held in Morioka, Japan, June 12-15, 1985.
- 14 Inhibition of lipid metabolism in germinating mung bean seeds by fluoride, at the XVth Conference of the International Society for Fluoride Research held in Logan, Utah, July 30-Aug. 2, 1986.
- 15 Invited by China's Institute of Labor Protection to give a seminar titled Environmental Fluoride at a symposium on Endemic Fluorosis in Shandong, China, September 22-23, 1986.
- 16 Efficiency of iron extraction from soil by mugineic acid family phytosiderophores at the 4th International Symposium on Iron Nutrition and Interactions in Plants in Albuquerque, New Mexico, July 6-9, 1987.
- 17 The effect of NaF on amylase in mung bean seedlings at the I6th Conference of the International Society for Fluoride Research in Nyon, Switzerland, August 31-September 2, 1987.
- 18 Effects of fluoride on living systems at Josai Dental College, Japan, September 18, 1987.
- 19 Effects of NaF on lipid and carbohydrate metabolism in germinating mung bean seeds at the Biology Department, Western Washington University, Feb. 6, 1989.
- 20 Effect of NaF on soluble sugars in mung bean seedlings at the XVIIth Conference of the International Society for Fluoride Research held in Budapest, Hungary, June 22-25, 1989.
- 21 A health survey of employees at an aluminum plant in China. II. A biochemical study at the XVIIth Conference of the International Society for Fluoride Research held in Budapest, Hungary, June 22-25, 1989.
- 22 Biological effects of environmental fluoride at Iwate Medical University, Morioka, Japan, May 18, 1990.
- 23 Nutrition and Cancer, at Osaka Medical College, Japan, May 11, 1990.
- 24 Nutrition and Cancer at Morioka Junior College, Morioka, Japan, May 14, 1990. [in Japanese].
- 25 Nutrition and Cancer at Akita University, Akita City, Japan, May 15, 1990. [in Japanese].
- 26 Nutrition and Cancer at Iwate Medical University, Morioka, Japan, May 22, 1990. 26. Nutrition and Cancer at Iwate University, Morioka, Japan, May 25, 1990. [in Japanese].

- 27 Fluoride inhibition of invertase in mung bean seedlings at the XVIIIth Conference of the International Society for Fluoride Research held at Humboldt State University, Arcata, CA, Aug. 1-4, 1990.
- 28 Effects of fluoride on salivary amylase activity (co-author), at the XVIIIth Conference of the International Society for Fluoride Research held at Humboldt State University, Arcata, CA, Aug. 1-4, 1990.
- 29 Effects of lead, copper, zinc, and cadmium on growth and soluble sugars in germinating mung bean seeds at the 12th annual meeting of the Society of Environmental Toxicology and Chemistry held in Seattle, Nov. 3-7, 1991.
- 30 Fluoride effects on plants, with an emphasis on seed germination - A special lecture, given at the XIXth Conference of the International Society for Fluoride Research, held in Kyoto, Japan, Sept. 8-11, 1992.
- 31 Organofluorophosphate hydrolyzing enzymes in germinating seeds at the XIXth Conference of the International Society for Fluoride Research, held in Kyoto, Japan, Sept. 8-11, 1992.
- 32 Diet and Cardiovascular Diseases at the Annual Meeting of the Society of Iwate Public Health and Hygiene, Morioka, Japan, Dec. 5, 1992.
- 33 Effect of fluoride on the growth, soluble sugars, and invertase in germinating mung bean seeds at the 13th Annual Meeting of the Society of Environmental Toxicology and Chemistry, Cincinnati, Ohio, Nov. 8-12, 1992.
- 34 DFP-Hydrolyzing enzymes in germinating seeds at the 14th Annual Meeting of the Society of Environmental Toxicology and Chemistry, Houston, Texas, Nov. 14-18, 1993.
- 35 Characterization of invertase from mung bean seedlings at the 20th Conference of the International Society for Fluoride Research held in Beijing, China, Sept. 5-9, 1994.
- 36 Separation of invertase in mung bean (*Vigna radiata*) seedlings by two-dimensional HPLC at the XXth Conference of the International Society for Fluoride Research held in Beijing, China, Sept. 5-9, 1994. (Co-authors: Ouchi K, Shigematsu A.)
- 37 Effects of fluoride on living systems at the Department of Agricultural Chemistry, National Taiwan University, Taipei, Taiwan, Sept. 16, 1994.
- 38 Effect of fluoride on superoxide dismutase (SOD) activity in germinating seeds at the 15th Annual Meeting of the Society of Environmental Toxicology and Chemistry held in Denver, Colorado, Oct. 30-Nov. 3, 1994.
- 39 Effect of fluoride on living systems at Jiangxi Institute of Labor Hygiene and Occupational Medicine in Nanchang, China, March 27, 1995.
- 40 Environmental fluoride at the Dept. of Preventive Medicine, China Medical University, Shenyang, China, July 5, 1995.
- 41 Environmental fluoride and living systems at the Institute of Environmental Health and Engineering, Chinese Academy of Preventive Medicine, Beijing, China, July 12, 1995.
- 42 Does fluoride affect the ascorbate glutathione cycle in germinating seeds at the 5th Pacific Northwest Society for Environmental Toxicology and Chemistry meeting in Corvallis, Oregon, May 17-18, 1996, (Co-author: A. Babbit AB).
- 43 Effect of fluoride on antioxidant system in germinating seeds at the XXIst Conference of the International Society for Fluoride Research, Budapest, Hungary, August 25-29, 1996.
- 44 Recent developments in environmental toxicology; Impacts of chemicals upon ecological systems at Osaka Medical College, Osaka, Japan, April 23, 1999.
- 45 Inhibition of growth and α -amylase activity in germinating mung bean seeds by arsenic, cadmium, copper, mercury, and zinc at the Pan-Asia-Pacific Conference on Fluoride and

- Arsenic Research, held in Shenyang, China, August 16-20, 1999 (Co-authors: Keeney C, Logan M, Bellona C, and Dier-Ackley L).
- 46 Effect of fluoride on superoxide dismutase (SOD) activity and GSH levels in the earthworm *Eisenia fetida* at the XXIIIrd Conference of the International Society for Fluoride Research, held in Szczecin, Poland, June 11-14, 2000 (Co-author: Lawson P).

THE MING-HO YU AWARD AND ENVIRONMENTAL TOXICOLOGY SCHOLARSHIP

The Ming-Ho Yu Award for the Best Outstanding Student in Environmental Toxicology was created in 2005 and named for Professor Emeritus Ming-Ho Yu to honor him and the legacy he left in Huxley College. Dr. Yu played a key role in developing the environmental toxicology program in the college in the early 1980s. He also helped to rebuild and reconfigure the program when the Institute of Environmental Toxicology & Chemistry was created and the new director, Dr. Wayne Landis, was hired in 1989. Ming-Ho's love of teaching and inspiring students to pursue a career in environmental toxicology continued even after he retired in 1997.

In subsequent years, he worked with The Western Foundation to establish a scholarship fund for undergraduate students that has slowly grown over the years and provided additional support for a deserving student in the environmental toxicology program. Eventually, the award of scholarship funds and the Ming-Ho Yu Award for the Best Outstanding Student in Environmental Toxicology were combined into one award ceremony to which Dr. Ming-Ho Yu attended each year up until his death on March 17, 2020.

In tribute to his memory as a teacher, mentor, dedicated researcher, and accomplished scholar, the scholarship fund was renamed the Ming-Ho Yu Environmental Toxicology Scholarship Fund in May 2020. Scholarship funds and the Ming-Ho Yu Award are awarded each spring quarter to the undergraduate in Toxicology Emphasis Program in the Environmental Sciences major who excels academically, as well as shows the leadership and research skills that promise an outstanding advanced education and career in the field. The award recipient is selected by Institute of Environmental Toxicology & Chemistry Director and affiliated faculty based on their first-hand knowledge and work with the student in the course of the academic year. There is no formal application process.

Since its inception, 18 students have received the award and in some years two students were selected to receive the award. The student receives a personalized engraved plaque, as well as their name is added to the perpetual plaque displayed in the Institute of Environmental Toxicology & Chemistry. Students have also received tuition waivers awarded from the Ming-Ho Yu Environmental Toxicology Scholarship Fund. Winners of the award have been: 2019–2020 Katie Benoit; 2019–2020 Ava M. M. Gempler; 2018–19 Ethan Brown; 2018–19 Janae Gallant; 2017–18 Ian L. Moran; 2016–17 Kimberly Diep; 2015–16 Miranda L. Aiken; 2014–15 Ryan J. DeWitt; 2012–13 Courtney Fung; 2011–12 David C. Wood; 2010–11 Susannah T. Edwards; 2010–11 Mariana N. Cains; 2009–10 Siobhan Sloan–Evans; 2009–10 Brian Church; 2008–09 Evan Gray; 2007–08 Andrew Ryan; 2007–08 Melody Feden; 006–07 Chad Weldy; and 2005–06 Jessica Ellis.