

## BIOGRAPHICAL SKETCHES

**Ali B. Ishaque, Ph.D.**

University of Maryland Eastern Shore

Department of Natural Sciences MD 21853-1299

Email: [abishaque@umes.edu](mailto:abishaque@umes.edu) ; Phone: (410) 651-6050; Fax: (410) 651-7739

### Appointments:

- **Professor** of Environmental Science University of Maryland Eastern Shore, Princess Anne, MD 2015-
- **Associate Professor** of Environmental Science University of Maryland Eastern Shore, Princess Anne, MD 2005-2015
- **Assistant Professor** of Environmental Science, University of Maryland Eastern Shore, Princess Anne, MD 2003-2005
- **Lecturer** of Environmental Science, University of Maryland Eastern Shore, Princess Anne, MD, 2001-2003
- **Postdoctoral Fellow**, Jackson State University, Jackson, MS, 1999-2001
- **Postdoctoral Fellow**, Free University of Brussels, Belgium, 1998-1999
- **Research Associate**, Free University of Brussels, Belgium, 1992-1998

### Education:

- Free University of Brussels, Belgium (PhD), Ecotoxicology, 1998
- Free University of Brussels, Belgium (MS), Marine Ecology, 1992
- University of Science & Technology, Ghana (BS), Chemistry, 1988

### Memberships of Professional Societies

1. Editorial Board Member, Journal of Marine Science: Research & Development- Open Access
2. Active Member Society of Toxicology

### National, State, and Regional Committee Services:

#### Campus:

1. Graduate Toxicology Director
2. Group Leader ENVS
3. ORAU counselor

#### Inter-Campus Committee Assignment(s):

- UMES-SU Dual Degree Program coordinator

#### USM Committee Assignment(s):

- Member University System of Maryland Environmental Scholarship Steering Committee

#### State Assignment(s):

*Board Member*, Maryland Coastal Bay Foundation

*Advisory Council*, Center for the Study of the Health Effects of Fire. Maryland Department of Health and Mental Hygiene.

**Research experience and interest:** My research interest is in environmental chemical stressors, especially contaminant of emerging concerns. I am also interested in trophic levels relationship. Environmental stressors pose complex risks to the environment. My research focuses on approaches to understand the impact of environmental stressors on environmental quality, develop innovative tools that address biological and molecular mechanisms of environmental

stressors, help to assess risk factors and identify health indicators, and develop and support environmental health policy and promote individual and public health. I am also using Fatty acid markers, stable isotope ratios and mercury concentrations to understand trophic relationships and how food web change in relation to environmental factors and climate variability. Specifically, determine if fatty acid (FA) markers and stable isotopes (SI) of phytoplankton in seston, macroalgae, and sea grasses vary spatially, seasonally, and inter-annually, and if these variations affect the FA and SI compositions of zooplankton, benthic macroinvertebrates and fishes.

#### **Grants Awarded:**

1. GP-IMPACT -NSF proposal (\$500,000.00)- PI: Paulinus Chigbu; Co-PIs: Ali B. Ishaque; Michael Abazinge; Reza Khanbilvardi; Vernon Morris; Erik Zettler; Funding Agency: NSF; Funding Period: 9/1/15 to 8/31/20; 10 % Efforts
2. CREST Center for the Integrated Study of Coastal Ecosystem Processes and Dynamics in the Mid-Atlantic Region- PI Paulinus Chigbu (\$5M) –2017-2021 (NSF)

#### **Awards:**

- 2009 AACR Minority –Serving Institution Faculty Scholar in Cancer Research Award
- 2011 AACR Minority –Serving Institution Faculty Scholar in Cancer Research Award

#### **Doctoral Dissertation:**

1. Egbe Sandra Egiebor, Katherine Squibb, Anthony Nyame, Douglas Ruby, Joseph Pitula and **Ali Ishaque**. Cytotoxicity: The Underlying Mechanisms of Cell Death induced by four heavy metals (As, Cd, Hg and Pb) and their mixture on MCF7 cells (May 2011).
2. Adam Tulu, Rosemary Jagus, Andrea Johnson, Jeannine Harter-Dennis, Yan Waguespak **Ali Ishaque** (2011). The Separate and Joint Effects of Polycyclic Aromatic Hydrocarbons (PAHs) and Polychlorinated Biphenyls (PCBs) on Hepatic Cytochrome 19A (CYP19A) Expression in Atlantic Tomcod (*Microgadus tomcod*) (December, 2011)
3. Nadia Abou-Zeid, Katherine Squibb, Anthony Nyame, Douglas Ruby, Joseph Pitula and **Ali Ishaque**. Interactive Effects of Endocrine Disruptors (Atrazine, Cadmium, Arsenic and Nitrate) at Environmentally Relevant Concentrations on Breast Cell Lines (December, 2012)
4. Maryam Taboodi, Katherine Squibb, Laundetta Jones, Jurgen Schwarz, Kelly Mack, **Ali Ishaque** (2012). Cytotoxic Effect of Naringenin on Human Breast Cancer Cells ER (+) MCF-7 and ER (-) MDA-MB-468 (December, 2012).
5. Bernadette O. Ezeabikwa, Anthony Kwame Nyame, **Ali Ishaque**, Miguel Martin-Caraballo, Ahmed Elnabawi, Dia-eldin Elnaiem (2017). Analysis of Protein Glycosylation Changes Associated with Oncogenic Transformation of Urinary Bladder Cells.
6. Rehab Elfadul, Paulinus Chigbu, Dia-Eldin Elnaiem, Eric May, Joseph Okoh and **Ali Ishaque** (2018). Determination of Contaminants of Emerging Concern (CECs) in Maryland Coastal Bays (MCBs).
7. Blessing Onajite Edje, Min Byungrok, **Ishaque Ali**, Chen Nianhong, Malik Malik and Chigbu Paulinus (2019). Assessments of the Trophic Ecology of Copepods and Mysids in the Maryland Coastal Bays Using Stable Isotopes and Fatty Acid Biomarkers

#### **MS Thesis:**

Charles Kofi Klutse, Shawn R. White, Anthony K. Nyame. **Ali B. Ishaque** (2007). Evaluation of Individual and Combined Cytotoxicity of Arsenic, Cadmium, Mercury, and Lead on MCF 7 cell lines Using in vitro Cellular Systems.

## Publications:

1. Maryam Taabodi, Eric B May, Kelly M Mack, Katherine S Squibb, **Ali B Ishaque**: Oxidative stress pathways of flavonoid toxicity in human breast tumor cells. *Int J Clin Exp Pathol* 2017;10(3):2554-2567.
2. Egbe Egiebor, Adam Tulu, Nadia Abou- Zeid, Ozuem F. Oseji and **Ali B. Ishaque**: Oxidative Stress Pathway Mechanisms Induced by Four Individual Heavy Metals (As, Hg, Cd and Pb) and Their Quaternary on MCF-7 Breast Cancer Cells: *British Journal of Medicine and Medical Research*, ISSN: 2231-0614, Vol.: 17, Issue.: 7 - DOI:10.9734/BJMMR/2016/27687
3. Shuiwang Duan, Nianhong Chen, Sujay S. Kaushal, Paulinus Chigbu, **Ali Ishaque**, Eric May, Ozuem F. Oseji. Dynamics of dissolved organic carbon and total dissolved nitrogen in Maryland's coastal bays Estuarine, Coastal and Shelf Science 164 (2015) 451e462
4. Charles K. Klutse, Egbe S. Egiebor, Isoken T. Aighewi, and **Ali B. Ishaque**: The Effect of L-Buthionine Sulfoximine on the Toxicities and Interactions of As, Cd, Hg, and Pb and Their Composite Mixture on MCF 7 Cell Line (2015). DOI: 10.9734/BJAST/2015/13509
5. Nadia Abou-zeid, Egbe Egiebor, Kelly Mack, Katherine Squibb, Isoken Aighewi, **Ali Ishaque** (2014). Genotoxicity Effect of Atrazine, Arsenic, Cadmium and Nitrate, Individually and in Mixtures at Maximum Contaminant Level on Breast Cell Lines. *J. Afr. Ass. Physiol. Sci.* 2 (1): 130-141 (2014)
6. Isoken Aighewi, Osarodion Nosakhare, **Ali Ishaque** (2014). Geospatial Evaluation for Ecological Watershed Management II: Changes in Land Use-Land Cover Influence on Ecosystems Services. *Journal of Geographic Information System JGIS: Acceptance Notification [ID: 8401334]*
7. Egbe Egiebor, Adam Tulu, Nadia Abou-Zeid, Isoken Aighewi and **Ali Ishaque** 2013. The Kinetic Signature of Toxicity of Four Heavy Metals and Their Mixtures on MCF7 Breast Cancer Cell Line *Int. J. Environ. Res. Public Health* **2013**, 10(10), 5209-5220; doi:10.3390/ijerph10105209; <http://www.mdpi.com/1660-4601/10/10/5209/>
8. Aighewi, I.T., Osarodion K. Nosakhare and **Ali B. Ishaque** 2012. Land Use-Land Cover Changes and Sewage Loading in the Lower Eastern Shore Watersheds and Coastal Bays of Maryland: Implications for Water Quality. *Journal of Coastal Research*; doi: 10.2112/JCOASTRES-D-11-00195.1.
9. Nosakhare, O.K.; Aighewi, I.T.; Chi, A.Y.; **Ishaque, A.B.**, and Mbamalu, G., 2012. Land use land cover changes in the lower Eastern Shore watersheds and coastal bays of Maryland: 1986–2006. *Journal of Coastal Research*, 28(1A), 54–62. West Palm Beach (Florida), ISSN 0749-0208
10. Charles K. Klutse, Mack Kelly; Squibb, Katherine, **Ishaque, Ali** (2009). Differential toxicological interaction among arsenic, cadmium, lead and mercury on MCF 7 cell line. *Scholarly Research Exchange*, Volume 2009 • Article ID 789636 • doi:10.3814/2009/789636
11. **Ali B. Ishaque** and Tito I. Aighewi (2008). Dose-Response. In Sven Erik Jergensen and Brian D. Fath (Editor-in-Chief), *Ecotoxicology*. Vol [2] of *Encyclopedia of Ecology*, 5 vols. Pp. [957-967] Oxford: Elsevier.

12. Farah IO, Begum RA, **Ishaque AB** (2007). Differential protection and transactivation of P53, P21, Bcl2, PCNA, cyclin G, and MDM2 genes in rat liver and the HepG2 cell line upon exposure to pifithrin. *Biomed Sci Instrum* 43: 116-21.
13. **Ali B. Ishaque**, Linda R. Johnson, Tonya M. Gerald, Dwayne Boucaud, Joseph Okoh, Paul B. Tchounwou (2006). Assessment of Individual and Combined Toxicities of Four Non-Essential Metals (As, Cd, Hg and Pb) in the Microtox. *Int. J. Environ. Res. Public Health* 3 (1) 118-120.
14. **Ali B. Ishaque**, Eugene L. Bass, Roman Jesien, Steven Hughes, and Carine Hupke (2005) A better method for standardizing vitellogenin content of fish tissue; *Journal of Environmental Biology* 26 (1) 1-5
15. **Ali B. Ishaque**, Christine Timmons, Frederick V. Ballard, Carine Hupke, Kalpana Dulal, Linda R. Johnson, Tonya M. Gerald, Dwayne Boucaud, Paul B. Tchounwou (2005). Cytotoxicity of Dinitrotoluenes (2,4-DNT, 2,6-DNT ) to MCF-7 and MRC-5 Cells *Int. J. Environ. Res. Public Health* 2(2), 304-307
16. Paul B. Tchounwou, Clement G. Yedjou, Dominique N. Foxx, **Ali B. Ishaque**, Elaine Shen (2004). Lead-induced cytotoxicity and transcriptional activation of stress genes in human liver carcinoma (HepG<sub>2</sub>) cells. *Molecular and Cellular Biochemistry* 255:161-170.
17. **Ali B. Ishaque**, Paul B. Tchounwou, Barbara A. Wilson and Teresa Washington (2004) Developmental arrest in Japanese medaka (*Oryzias latipes*) embryos exposed to sublethal concentrations of atrazine and arsenic trioxide; *Journal of Environmental Biology* 25:1, 1-6
18. Paul B. Tchounwou, Cecilia Newsome, Konsuela Glass, Jose A. Centeno, Jerzy Leszczynski, Joseph Bryant, Joseph Okoh, **Ali Ishaque**, and Marius Brow (2003) Environmental Toxicology and Health Effects Associated with Dinitrotoluene Exposure. *Review on Environ. Health* Vol 18:3, 203-229.
19. Waneene C. Dorsey, Paul B. Tchounwou, **Ali B. Ishaque**, and Elaine Shen (2002). Transcriptional Activation of Stress Genes and Cytotoxicity in Human Liver Carcinoma (HepG<sub>2</sub>) Cells Exposed to Pentachlorophenol *Int. J. Mol. Sci.* 3, 992-1007.
20. P.B. Tchounwou, **A. B. Ishaque**, D. Sutton, Nanuli Ninashvili and Elaine Shen (2002). Biomarkers of Sensitivity and effect associated with cadmium and mercury toxicity in human liver carcinoma (HepG<sub>2</sub>) cells. In *Metal Ions in Biology and Medicine*. L. Khassanova, Ph. Collery, I. Maynard, Z. Khassanova, J.C. Etienne (Eds) 7:132-137.
21. Rowshan A. Begum, Ibrahim O. Farah, **Ali B. Ishaque** (2002). Pifithrin- $\alpha$  (PFT- $\alpha$ ) caused differential protection of rat liver cells and hepg2 cell line in response to the selective cytotoxicity of arsenic and cadmium. *Biomedical Sciences Instrumentation*. 38:41-46
22. P.B. Tchounwou, **A. B. Ishaque**, and E. Shen (2001). Cytotoxicity and Stress Genes in Human Liver Carcinoma Cells (HepG<sub>2</sub>) Exposed to Lead Nitrate. Special Issue, Abstracts of the IXth International Congress of Toxicology, 8-12 July, 2001- Brisbane, Australia. Vol. 164 nos. 1-3: 65. Guest Editor: P.F.A Wright.
23. P.B. Tchounwou, **A. B. Ishaque**, and J. Schneider (2001). Cytotoxicity and Transcriptional Activation of Stress Genes in Human Liver Carcinoma Cells (HepG<sub>2</sub>) Exposed to Cadmium Chloride. *Molecular and Cellular Biochemistry* 222:21-28

24. P.B. Tchouwnou, B. A. Wilson, **A. B. Ishaque**, and J. Schneider (2001). Atrazine Potentiation of Arsenic Trioxide-Induced Cytotoxicity and Gene Expression in Human Liver Carcinoma Cells (HepG<sub>2</sub>). *Molecular and Cellular Biochemistry* 222:49-59.
25. P.B. Tchounwou, B. Wilson and **A. Ishaque** (2001). Embryotoxicity of Arsenic Trioxide and Atrazine to Japanese Medaka (*Oryzias latipes*), and Cytotoxicity to Human Liver Cells (HepG<sub>2</sub>). *Environmental Toxicology and Risk Assessment: Science, Policy and Standardization – Implications for Environmental Decisions: Tenth Volume, ASTM STP 1403*: 83-95.
26. P.B. Tchouwnou, B. A. Wilson, **A. B. Ishaque**, J. Schneida, (2001). Transcriptional activation of stress genes, and cytotoxicity in human liver carcinoma cells (HepG<sub>2</sub>) exposed to 2,4,6- Trinitrotoluene, 2,4-Dinitrotoluene, and 2,6- Dinitrotoluene. *Environmental Toxicology* 16: 209-216.
27. P.B. Tchouwnou, B. A. Wilson, **A. B. Ishaque** and D. Sutton (2000). Toxicity evaluation of Arsenic Trioxide and Atrazine to Three Developmental Stages of Japanese Medaka (*Oryzias latipes*). In *Metal Ions in Biology and Medicine*. J.A. Centeno, Ph. Collery, G. Vernet, R.B. Finkelman H. Gibb, J.C. Etienne (Eds) 6:18-20
28. P.B. Tchounwou, B. Wilson and **A. Ishaque** (1999). Important Considerations in the Development of Public Health Advisories for Arsenic and Arsenic-Containing Compounds in Drinking Water. *Review on Environ. Health*. 14 (4): 211-229.
29. L.Holsbeek, C.R. Joiris, V. Debacker, **I.B. Ali**, P. Roose, JN. Nellissen, S. Gobert, JM. Bouquegneau and M. Bossicart (1999). Heavy Metals, Organochlorines and Polycyclic Aromatic Hydrocarbons in Sperms Whales Stranded in the Southern North Sea during the 1994/1995 winter. *Mar. Poll. Bull* 38:304-313.
30. C.R. Joiris, M. I. Azokwu, F.A. Otchere and **I.B. Ali** (1998). Mercury in the bivalve *Anadara (Senilia) Senilis* from Ghana and Nigeria. *Sci. Total Environ* 224:181-188.
31. C. R. Joiris, **I. B. Ali**, L. Holsbeek, M. Kanuya-Kinoti and Y. Tekele-Michael.(1997). Total and Organic Hg in Barents Sea Demersal Fish. *Bull. of Environ. Contam. and Toxicol.* 58: 101-107.
32. **I. B. Ali**, C.R. Joiris, L. Holsbeek (1997). Polychlorinated Biphenyls in Barents and Greenland Seas Fish. *Bull. of Environ. Contam. and Toxicol.* 58: 885-892.
33. **I.B. Ali**, C.R. Joiris, L. Holsbeek (1997). Total and Organic Mercury in the Polychaete *Maldanes sarsi* and the Starfish *Ctenodiscus crispatus* from the Barents Sea. *Sci. Tot. Environ* 201: 189-194.
34. C. R. Joiris, **I. B. Ali**, L. Holsbeek, M. Bossicart, G. Tapia (1995). Total and Organic Hg in Barents Sea Pelagic Fish. *Bull. of Environ. Contam. and Toxicol.* 55: 674