

### **Karina Caballero Gallardo. Ph.D.**

Since my undergraduate degree, I have always had a deep interest in science, in knowing about the environment, and the effects of contamination on human health. This is why I have been concerned mainly about the impacts of gold and coal mining in my country, the presence of parasites in fish and associations with mercury levels, search for molecules belonging to the Colombian Biodiversity with the capacity to repel insects, as important alternatives to the use of synthetic pesticides that have toxicity on organisms other than those for which they are intended, monitoring of lead in children, presence of trace elements in sediments, among others. Some of the most important contributions in the studies I have developed are listed below:

- *Knowledge of mercury (Hg) levels in gold mining areas located in the department of Bolivar and along its main rivers, both in humans and fish, and in other environmental matrices, this information is available and have been presented to the community as maps, posters and scientific articles, involving environmental education components at all levels.*
- *Report of Hg levels in indigenous communities from the Colombian Amazon with concentrations higher than those allowed internationally by the USEPA (1 µg/g) [average,  $7.29 \pm 0.61$  µg/g; range, 1.2- 47.0 µg/g; 79% of the samples showed levels greater than 10 µg/g].*
- *Hair Hg levels in inhabitants of the biogeographic Choco (1.26 µg / g, range: 0.02-116.40 µg/g).*
- *Monitoring of Hg in air and soil in areas of mining influence in the department of Choco and southern Bolivar.*
- *Report of Hg concentrations in canned tuna marketed in supermarkets of the Cartagena city, in the department of Bolivar.*
- *Report for the first time, of the effects of a coal dust leaching on the zebrafish, where through transcriptomic tools it was possible to associate the exposure levels with the effects on development, hematological system, inflammatory diseases, and cancer.*
- *Development of an animal model of coal dust exposure (doctoral thesis).*
- *Development of 100% natural repellents that are in the process of commercialization and that has been the subject of National and International awards.*
- *Report for the first time, of the trace elements and polycyclic aromatic hydrocarbons levels in marine sediments of the Santa Marta area in Colombia, which receive deposition of coal particles derived from the shipment of the mineral from the port to the tankers through the use of barges (doctoral thesis). It was shown through bioassays with a hepatic cell line and molecular biology tools that coal transport activities impact negatively the quality of this natural resource.*

I have received multiple distinctions in my academic career, due to my contributions in teaching and research. Among them, I can mention those granted by the Toxicology Society of the United States and the International Society of Toxicology to my work on coal dust, as well as those where I have been recognized for the advance in the development of repellents of natural origin that I have done together with the Industrial University of Santander through CENIVAM.

Several of my scientific works have been published in more than 30 presentations and 30 publications in national and international conferences scientific journals, respectively. I have written together with two colleagues the book entitled "Biochemical tests applied to health programs" for the development of the Biochemical Laboratory classes, which I teach in the School of Pharmaceutical Sciences.

Within all the goals achieved in my career, one of the successes that make me feel proud is having trained undergraduate and graduate students and researchers, as well as those who have received scholarships and awards.

My dream, my challenge, is to continue strengthening my scientific capabilities, trying to grow as a person every day, giving the best of me to contribute to a Colombia in peace that finds in science and its biological resources, the platform needed to achieve sustainable development, thus allowing our legacy to future generations to deliver a strong country and in harmony with its biodiversity.