

University of Lethbridge student takes top thesis prize at Canadian Ecotoxicity Workshop

Yamin Raza (BSc '22) capped off her undergraduate degree by winning an award for the best undergraduate thesis in the field of ecotoxicology. She presented her research and received the award at the recent annual conference of the Canadian Ecotoxicity Workshop.

“I was extremely honoured to receive the award,” says Raza. “But mainly I’m very grateful to my supervisor, Dr. Steve Wiseman, for all the time he invested in me as an undergrad student. It’s only with his support and the opportunities he provided me that I was able to make this achievement.”

“I’ve been very fortunate to have Yamin as a member of my research team,” says Wiseman. “I try to give all members of my lab an environment in which they can excel. Yamin has embraced the challenges of independent research and worked very hard to achieve success. It gives me a lot of joy to see Yamin recognized with this award at our discipline’s largest and most important national conference.”

For her honours thesis, Raza researched the effects of flame-retardant chemicals on fish reproduction. She developed an assay or procedure to assess the effects of exposure to a flame-retardant chemical known as TBCO on female Japanese medaka fish. TBCO is used in many products and materials from clothing and electronics to building materials. While flame retardant chemicals can help prevent products from bursting into flames, they can also leak out of products into the air, soil and water.

Raza tested TBCO in two ways: by exposing only oocytes (immature egg cells in the ovary) and by exposing female fish. She then examined how many oocytes reached maturation and how many eggs the fish produced. In both cases, exposure to TBCO had adverse effects.

“What we were able to see is that this flame-retardant impaired reproduction and oocyte maturation using the assay I developed,” says Raza. “The tool allowed us to predict adverse effects that might happen in reproduction by exposing the ovary and only using a few fish.”

The effectiveness of the assay Raza developed indicates it has the potential to be used more broadly.

“I was very excited when I got these results,” she says. “It was really interesting to see how we’re able to develop an assay and how it’s able to tell us so much. The goal moving forward is to develop this assay with more species of fish and with different chemicals.”

Raza, who grew up in Lethbridge, wasn’t sure what she wanted to do when she entered university but knew she enjoyed biology. She enrolled in the Department of Biological Sciences Research Internship Concentration and that allowed her to get involved in research early on in her university career. Raza is now working on a master’s degree in Wiseman’s lab.

“I just found his lab really interesting to work in,” she says. “I didn’t know what to expect going in, but I ended up loving it and it really ignited a passion for toxicology in me.”