Environmental Fate of Popular Anti-Depressant/Anxiety Medication Escitalopram (Lexapro)

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Poster Presentation Abstract:

Since the official launch of the Mental Health Commission of Canada in 2012, Canada's first mental health strategy was created. The increase in awareness for mental health has shown that depression/anxiety ranks among the top three illnesses reported; of which 21% of Edmontonians experience in a year. The most common treatment is prescription medication where SSRI antidepressants such as escitalopram (Lexapro) are the bulk of the prescriptions filled. SSRI's, known as selective serotonin reuptake inhibitors, affect the process of returning serotonin to the end of the neuron it comes from by slowing it down. The goal is to build up enough serotonin to set off the impulse in the next neuron, allowing the body to adjust to the reduced amounts of serotonin. Akin to many other prescription drugs which are excreted from the body, the environmental fate of escitalopram becomes a concern to the water ecosystem around Edmonton. Evaluation on the antidepressant escitalopram identifies a potential emission of 0.147 kg per day being released by the depression/anxiety population of Edmonton. A multimedia fugacity model assessed the dispersal and consequence of Escitalopram emissions going through the wastewater treatment facility into the North Saskatchewan River and surrounding environments. The model illustrated that the majority of the antidepressant are deposited in the sediment. The soil and suspended particles receive the next highest percentages. The antidepressant has demonstrated that it has little impact on the non-aqueous phase liquids, and minimal affect on the river bed.

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