# The Drugs Don't Work

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EWDTS Young Scientist Award

Introduction and state of the art

🔻 **In the last decades the abuse of drugs raised the community attention because of the public health and the continuous growth of their use**.

🔻 **Recently some scientific studies highlighted the consumption of drugs in cities or places analyzing the sewage or wastewater [1-6].**

🔻 **Normally the analysis were conducted using HPLC (High Performance Liquid Chromatography) coupled with MS (Mass Spectrometry). These latter could be at low (triple quadrupole or ion trap) or high (Orbitrap) resolution.**
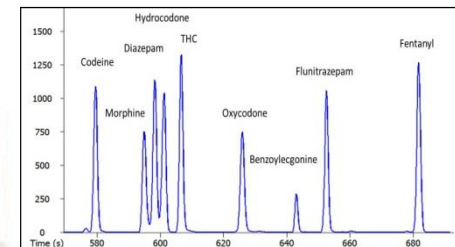
[1] S. Castiglioni et al. **2008**. Mass spectrometry reviews, 27 (4), pp. 378-394
[2] Y. Ryu et al. **2016**. Science of the total environment, 565, pp. 977-983
[3] J.A. Baz-Lomba et al. **2016**. BMC Public Health, 16
[4] S. Salvatore et al. **2016**. Journal of public health-heidelberg, 24 (3), pp. 165-174
[5] I. Gonzalez-Marino et al. **2016**. Environmental science & technology, 50 (18), pp. 10089-10096
[6] G. Gatidou et al. **2016**. Science of the total environment, 563-564, pp. 633-640

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Aim of the project

- It becomes relevant to monitor the workplace of selected industrial plans and factories because of the safety of the workers [7].

- The aim of the project is the measurement of particular drugs of abuse in wastewater of workplace to epidemiologically evaluate the work security.

- The sample, coming from men and women toilet wastewater, will undergo a purification with a solid phase extraction and then they will analyze with a HPLC (Ultimate Dionex 3000, Thermo Fisher) coupled through a ESI/APCI source to a HRMS (High Resolution Mass Spectrometry, Orbitrap Fusion, Thermo Fisher).

- The data will be statistically treated.

[1] F. Dal Bello et al. **2016**. Drug testing and analysis, 8 (7), pp. 730-737

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Personal presentation

I was born in Giaveno, Turin, on October 21st, 1982.

I graduated in 2009 at the University of Turin, pharmaceutical chemistry and technoly adress, mark 100/110. The objective of this degree is to train a health professional that will be able to work in the pharmaceutical industry having achieved the multidisciplinary scientific and technological expertise.

From 2011 till 2013 I attended a Ph.D. course in Chemical and Material Sciences at the University of Turin, Doctoral School of Sciences and Innovative Technologies.

During my three years of Ph.D. I worked in an analytical laboratory. My entire Ph.D. research centers around HPLC coupled with HRMS detection (Orbitrap technologies) analysis. I focused my attention on the development of new HPLC-HRMS methods for the determinations of biomarkers and markers in complex matrices.

I spent an abroad period at the University of Minneapolis, Minneapolis, Minnesota (USA), where the DNA modifications, and cancer, induced by tobacco smoke were the topic of my research. When I came back to Italy, I still studied cancer therapy: I studied cyclophosphamide and mitomycin C as possible markers of occupational and environmental contaminants.

Normally, I was able to coordinate some thesis students in the lab.

Type of business or sector: HPLC-HRMS

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