

CONCORSO PUBBLICO, PER ESAMI, A N. 1 POSTO DI CATEGORIA D POSIZIONE ECONOMICA D1, AREA TECNICA, TECNICO-SCIENTIFICA ED ELABORAZIONE DATI, PER LE ESIGENZE DEL DIPARTIMENTO DI SANITA' PUBBLICA DELL'UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II (COD. RIF. 2003) INDETTO CON DECRETO DEL DIRETTORE GENERALE N. 436 DEL 30.06.2020 E PUBBLICATO SULLA G.U. IV SERIE SPECIALE – CONCORSI ED ESAMI – N. 53 DEL 10.07.2020

ELENCO DEI QUESITI NON ESTRATTI

PROVA ORALE DEL 29.09.2020

- 1) Acque destinate al consumo umano: attuali disposizioni legislative.
- 2) I controlli analitici delle acque destinate al consumo umano.
- 3) Metodi di prelievi di matrici ambientali per la valutazione degli inquinanti.
- 4) Cromatografia, Principali tecniche di sequenziamento genico ed Elaborazione dati in Excel.

Drinking water in Barcelona city and in 23 other surrounding municipalities of its metropolitan area is served to almost 3 million consumers daily by Aigües de Barcelona-EMGCIA Co. for the last 150 years. This water company also manages one of the most complex waterworks of Europe (drinking water treatment plants 1) located in the final stretch of Llobregat River, which one of the most polluted and studied rivers by the Spanish scientific community (Sabater et al., 2012) due to its water scarcity, density of population and industrial development. Drinking water treatment plants 1 (7 m³/s) is located in the last stretch of Llobregat River, before the discharge of bypass system of Anoia River, Rubí Creek and several industrial and urban wastewater effluents (see SI). After a conventional pretreatment (including clarification and sand filtration), the water is split between a conventional refining treatment including ozonation followed by a filtration through granular activated carbon (GAC), and an advanced treatment line that uses membrane technology. Both conventional and advanced treatments of produced water are blended and the percentage of water production in both treatments is variable, and it depends on the quality of the raw water (Fig. 2).

- 1) Innovazioni apportate dall'attuale legislazione sulle acque destinate al consumo umano.
- 2) Descrizione dei parametri chimico-fisici per il controllo delle acque potabili.
- 3) La valutazione degli inquinanti attraverso i metodi di prelievi di matrici ambientali.
- 4) Cromatografia ionica, Principali tecniche di sequenziamento genico ed Elaborazione dati in Excel.

The European Directive 98/83/CE legislates the presence of pesticides in drinking water, but apart from a few compounds, nothing is said about which pesticides should be monitored. Nevertheless, water companies need to go beyond the accomplishment of the legislation and find out pesticide contamination in all sources of water in order to manage the hazard assessment, and to guarantee safe drinking water to all the population. The aim of this work was to develop an analytical multi-residue method for circa 100 compounds. The method analyses previously monitored compounds in Barcelona city and its metropolitan area, as well as many emerging pesticides and some transformation products.

- 1) Innovazioni apportate dall'attuale legislazione sulle acque destinate al consumo umano.
- 2) Metodi analitici per il controllo delle acque destinate al consumo umano.
- 3) Impatto sulla salute degli inquinanti ambientali.
- 4) Spettrofotometria in assorbimento atomico, Amplificazione nel sequenziamento genico e Utilizzo dell'Excel.

As for other contaminants, the control of pesticide contamination in the aquatic environment in Europe is regulated under the Water Framework Directive (WFD, 2000/60/EC) and its daughter Directives: Groundwater Directive 2006/118/EC and Environmental Quality Standards (EQS) Directive 2008/105/EC, updated by means of the Directive 2013/39/UE. These regulations provide a framework to protect the ecological and chemical status of all EU waters, setting specific limits for 45 priority substances, among which 24 were pesticides or biocides. There is also a regularly updated watching list of compounds that must be controlled in order to consider their inclusion in the WFD list (Decision 2015/495).

**Per ordine del Presidente
Il Segretario della Commissione
f.to. Annamaria Cincinnato**