

Accepted Manuscript

Environmental microbiology: perspectives for legal and occupational medicine

Saverio Giampaoli, Federica Alessandrini, Giovanni Vanni Frajese, Giovanni Guglielmi, Adriano Tagliabracci, Andrea Berti

PII: S1344-6223(18)30100-7

DOI: <https://doi.org/10.1016/j.legalmed.2018.09.014>

Reference: LEGMED 1544

To appear in: *Legal Medicine*

Received Date: 22 March 2018

Revised Date: 9 August 2018

Accepted Date: 23 September 2018

Please cite this article as: Giampaoli, S., Alessandrini, F., Vanni Frajese, G., Guglielmi, G., Tagliabracci, A., Berti, A., Environmental microbiology: perspectives for legal and occupational medicine, *Legal Medicine* (2018), doi: <https://doi.org/10.1016/j.legalmed.2018.09.014>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Environmental microbiology: perspectives for legal and occupational medicine

Saverio Giampaoli^a, Federica Alessandrini^b, Giovanni Vanni Frajese^a, Giovanni Guglielmi^c, Adriano Tagliabracci^b, Andrea Berti^{d*}.

- a) University of Rome “Foro Italico”, Department of Movement, Human and Health Sciences, P.zza L. De Bosis, 6, 00135 Rome, Italy
- b) Sezione di Medicina Legale, Dipartimento di Scienze Biomediche e Sanità Pubblica, Università Politecnica delle Marche, Via Conca e Torrette, 60126 Ancona, Italy
- c) Division of Occupational & Preventive Medicine, Santa Chiara Hospital, via Paradisa 2, 56124, Pisa, Italy
- d) Carabinieri, Reparto Investigazioni Scientifiche di Roma, V.le di Tor di Quinto, 119, 00191 Roma, Italy

*Corresponding author. Email: andrea.berti@carabinieri.it

Abstract

The analysis of microorganism population is crucial in several medical fields. This is especially true in legal and occupational medicine, where the specialist can be asked to perform an evaluation of several environmental matrices. In these two medical fields an accurate microbiological analysis is part of a wide process aimed to the definition of the interactions between human beings and environment.

In legal medicine it is important to deserve attention to the identification of microbiological traces in order to better understand past events, while in occupational and preventive medicine the microbiological evaluation of environmental samples is crucial for an effective risk management and the definition of safety procedures. The achievement of these objectives requires the comprehension of microbial biodiversity and not only the identification of few biomarkers. In the present paper, the complexity of this process is highlighted through the presentation of typical scenarios where microorganism population analyses are relevant in legal medicine and occupational medicine.

The similarities between the microbiological approach in legal and occupational medicine lead to the sharing of laboratory approaches. A description of technological evolution shows how new protocols and procedures are supporting a wider microbiological comprehension of specimens. The development of molecular tools has opened new opportunities, but it has underlined the need for the implementation of new standardized procedures dedicated to these medical fields, where science and medicine interact with the law. In addition, the rapid evolution of massive parallel sequencing technologies requires the implementation of new bioinformatic tools with a user-friendly interface.

Keywords: microbiota, forensic, occupational health, NGS, environmental microbiology, molecular tools

Download English Version:

<https://daneshyari.com/en/article/11028333>

Download Persian Version:

<https://daneshyari.com/article/11028333>

[Daneshyari.com](https://daneshyari.com)