

INCIDENCE OF PATHOGENIC BACTERIA ON COCKROACHES COLLECTED IN DIFFERENT MUNICIPAL BUILDINGS OF BARCELONA

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Abstract Cockroaches (Blattodea) are important mechanical vectors for the transmission of many pathogens including bacteria, protozoa, fungi, and viruses, and can contaminate food, water, and affect animals and humans. These pathogens can be carried in different parts of the cockroach body (legs, mouthparts) as well as in their secretions (regurgitations and feces) so they suppose a major problem for public health. Transmission and storage of certain bacteria by cockroaches is an important risk factor for the spread of pathogens in hospitals, homes, restaurants and food establishments. Consequently, a suitable control of cockroach populations is needed to minimize the spread of several infectious diseases. To evaluate the pathogenic potential of cockroaches, a comprehensive study was carried out in municipal facilities of Barcelona analyzing the infestation level and prevalence of different pathogens. Exemplars of cockroaches were obtained from the pest surveillance and control programme conducted in 668 municipal buildings. Sampling was focused on two types of equipments with greater risk for public health in the context of likely alimentary contamination: municipal centers including a kitchen or a bar (alimentary manipulation) and municipal markets containing large quantities of food products (alimentary storage). Samples were taken every three months during one complete year (12 months). In each monitoring visit, cockroaches collected in sticky traps were carefully identified at species level and processed for pathogens screening in laboratory conditions. More than 80 samples were analyzed for those pathogens with major importance for public health: *Salmonella* spp, *Campylobacter* spp, *Listeria monocytogenes*, *Staphylococcus coagulase* positive and *Escherichia coli* beta-lactam resistant. The results show the presence of three synanthropic species of cockroaches in the equipments: *Periplaneta americana*, *Blattella germanica* and *Blatta orientalis* (in less amount). The analysis of the pathogens prevalence shows the ability of these insect species to transport and store bacteria of public health interest, certainly an important reason to increase efforts in pest monitoring and control programmes in these establishments and reduce the risks to public health.