

PERFORMANCE OF GEL BAIT INSECTICIDE IN THE SEWAGE SYSTEM OF BARCELONA FOR COCKROACH CONTROL

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Abstract The Public Health Agency of Barcelona (ASPB Catalan acronym) is in charge of the surveillance and control of pests, such as cockroaches, in public areas and sewage system of the City. As in other Mediterranean cities, *Periplaneta americana* has colonized the sewage system of Barcelona in last years, causing citizen complaints, economical costs and potential sanitary implications. Therefore, the control of this species in public environments is mandatory for multiple reasons. As 55% of Barcelona's sewage system can be visited and inspected the City counts with singular conditions to fulfil an Integrated Pest Management (IPM) based program. In order to test the efficiency of a gel bait insecticide in different situations of the sewage system, a comprehensive study was carried out from June to November 2016. According to current biocides registration in Spain and the gathered experience of routine control plans in the city, the product Ecorex Gel One® (Cypermethrin 40/60 at 1%) was selected for the assays. Four different treatment types with five replicas each (20 points) and two control points were chosen. Of the total 22 points 16 corresponded to accessible underground sewage system and 6 points to non-accessible underground sewage system. Accessible underground points included a 50m section with 3 manholes, inspection was made at underground level when possible, the difference in treatment consisted on whether the gel bait was applied at manhole level, underground level or at both levels. Each point was monitored every two weeks and information of cockroach activity (visual counting and trapping), as well as environmental humidity and temperature, was recorded every visit. Biocide was applied whenever activity was found, and an influence perimeter area was established where no other control actions could be taken. The efficacy, variation in efficacy associated with the point of gel bait application, as well as some interesting information about the ethology of *P. americana* in this urban habitat will surely be of great interest for future IPM sewage system cockroach control plans.