

Legionella longbeachae as Approach towards a New Medium of *Legionellae* Transmission

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Some decades ago biological agent *Legionella* was identified as the cause of the disease known as legionellosis. This is found worldwide, with low incidence, occurring in sporadic cases or outbreaks, and a lethality that can reach up to 15%. Fifty species (70 serogroups) of *Legionella* are known, even now, the description of new species is continuing [1]. The one with the highest infectivity is *Legionella pneumophila* serogroup 1, which causes about 72% of infections. *Legionella* is mainly characterized by its transmission by air in water droplets. In fact, water is the most important natural reservoir for *legionellae* although some species are able to colonize other environments. It should be noted that this is not as usual, and certain agents, especially *Legionella longbeachae* is possible to identify in soil, compost and other substrates. The demonstrated ability of *Legionella* to colonize systems, facilities and devices for human use has led to its development and, in some cases, reach critical water concentrations to public health. The identification of sources of risk and concentration levels reached by the bacterium is essential for the prevention of disease. In Southern Europe (Spain) the disease is notifiable, with most of the outbreaks from the community level, and a decrease in mortality since the beginning of this decade. Some innovative preventive systems have been implemented to controlling the bacterium besides a discerning epidemiological surveillance and outbreak investigation. The use of these tools allows to identify new sources of infection, which have been described previously [1-4].

In 1990, Steele et al. [5] showed that the soil and potting mix in Australia could be a source of infection. The recent identification of *legionellae* in soils [6] permits to suggest the possible contamination of water systems with origin in application substrates. Open water surfaces are considered especially vulnerable when supplied with reservoirs of distribution systems and air-water cooling systems. Both devices have the capacity to disperse the agent with great influence on the exposure to people. In the first case the bacterium can travel great distances, go forward and spread out; while the second is produced by aerosolization. In the study of prevention of the disease, facilities or high-risk systems has been described. But due to technological advance each time new devices are incorporated to consider [7]. The sanitary water is included as a classic system, improving the development and spread of bacterium. Sometimes it is used as irrigation water when it comes from tanks, while in the majority of cases usually employed as recycled water, for waste water treatment plant and well water. Whenever there is a possible aerosolization, in addition to the method or absence of water disinfection [8], may be a different risk depending on the type of water. In Southern Europe the maintenance of green areas for public use (urban or not) is preferably carried out by irrigation and a demand of compost and soil as a complement to the floor. Dust formation and dispersion with *Legionella* could be an additional transmission medium to aerosolized water, and the substrate a new source of propagation [9]. Besides the failure to comply with the existing procedures for the prevention and control of legionellosis [10] in irrigation facilities, induces these systems are considered as critical devices for the proliferation and spread of the bacterium [11]. As stated, it is possible that irrigation with polluted water promotes the development of *Legionella* in the soil habitat that could be suitable [12], amplifying the

sources of infection. A very profound study is required on possible new reservoirs of bacterium by pollution of soils and derivative products, arising due to alternative water sources or from irrigation devices with inadequate hygiene and preventive maintenance. It is also possible to consider the return path in which a watery medium is contaminated with *Legionella* from the substrate, which should define the possibility of a new transmission medium with the absence of aerosol.

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