

Long-term preservation of *Leptospira* spp.: challenges and prospects

ABSTRACT

Preservation of leptospiral cultures is tantamount to success in leptospiral diagnostics, research, and development of preventive strategies. Each *Leptospira* isolate has imperative value not only in disease diagnosis but also in epidemiology, virulence, pathogenesis, and drug development studies. As the number of circulating leptospire is continuously increasing and congruent with the importance to retain their original characteristics and properties, an efficient long-term preservation is critically needed to be well-established. However, the preservation of *Leptospira* is currently characterized by difficulties and conflicting results mainly due to the biological nature of this organism. Hence, this review seeks to describe the efforts in developing efficient preservation methods, to discover the challenges in preserving this organism and to identify the factors that can contribute to an effective long-term preservation of *Leptospira*. Through the enlightenment of the previous studies, a potentially effective method has been suggested. The article also attempts to evaluate novel strategies used in other industrial and biotechnological preservation efforts and consider their potential application to the conservation of *Leptospira* spp.

Keyword: Preservation; Microorganism; Fastidious; *Leptospira*.