

Title: *LISTERIA MONOCYTOGENES*: CHARACTERIZATION OF SEROTYPES, VIRULENCE GENES AND GENETIC RELATIONSHIP BETWEEN SAMPLES FROM HUMAN ORIGIN AND FOOD IN BRAZIL

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Summary:

Listeria monocytogenes is a Gram-positive pathogen transmitted by food and often found in nature. Listeriosis affects specially children, the elderly, pregnant women and immunosuppressed patients, with high lethality rate ranging between 20 - 30%, major clinical manifestations are gastroenteritis, meningitis and sepsis. Among the serotypes of *L. monocytogenes* described, we highlight the 1/ 2a, 1 / 2b and 4b associated with most outbreaks and cases of listeriosis in the world. This study aimed to characterize at bacteriological and molecular level, 43 isolates obtained from foods (2001-2013) and 57 human clinical specimens (1975-2013) from different cities of Brazil. Identification of isolates showed that 49% belonged to serotypes 4b, 29% to 1/2b, 14% to 1/2c, and 8% to serotype 1/2a. Eight samples of serotype 4b showed the amplification profile 4b-VI (Variant I) when subjected to multiplex PCR to confirm the serotypes. The virulence genes *hly*, *inlA*, *inlB*, *inlC*, *inlJ*, *actA*, *plcA* and *prfA* were detected in all isolates and *actA* gene showed a deletion of 105pb in 23% of isolates, all belonging to serotype 4b. Epidemic clone I (ECI) and epidemic clone II (ECII) were found in 41% (20) and 26 (13), respectively, among the isolates of the serotype 4b. The macrorestriction profile obtained with *Apal* enzyme in PFGE revealed 56 distinct pulsotypes and the detection of isolates of the same pulsotype in São Paulo in 1992 and 1997, and two highly related pulsotypes in a hospital at Rio de Janeiro in 2008. Some pulsotypes related to cases of listeriosis in the past continue to be detected in food in recent years. The prevalence of serotype 4b found in the study added to the occurrence of ECI and ECII and persistence of pulsotypes over time alert to the possibility of outbreaks of listeriosis in the country.

Key-words: *Listeria monocytogenes*, virulence genes, epidemic clone, PFGE

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