

**Title: Phenotypic comparison among *Salmonella* Enteritidis strains isolated in the pre and post-pandemic period in Brazil**

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**Abstract** *Salmonella* Enteritidis emerged since the 80's as the most isolated serovar from gastroenteritis cases worldwide. In Brazil it is believed that an epidemical and more virulent clone of this serovar has been inserted in the country through the exchange of chickens with other countries. The aim of this study was to comparatively analyze by phenotypical tests *S. Enteritidis* strains isolated in the pre and post-pandemic period in Brazil. For this, 27 *S. Enteritidis* strains isolated in the pre-pandemic period (1968-1993) and 20 isolated in the post-pandemic period (1994-2013) in Brazil were compared regarding survival to the acid and oxidative stress, ability to grow in the egg albumen, invasion to human epithelial cells (CACO<sub>2</sub>), survival and multiplication capacity in human (U937) and chicken (HD-11) macrophages. Pre-pandemic strains were less resistant than post-pandemic strains to the exposition of 10<sup>8</sup> CFU of each strain to acid stress by 10 minutes, with mean of survival of 0,255% and 2,159% respectively (P≤0.05). Moreover, pre-pandemic strains were less capable of survive and multiply in human macrophages (U937) with mean of multiplication of 104% and 406% respectively (P≤0.05). Regarding the other tests, pre-pandemic strains survived less than post-pandemic strains to the exposition of 10<sup>8</sup> CFU of each strain to acid stress by 1 hour, with mean of survival of 0% and 0,000065% respectively. Also, those strains were less resistant to the exposition of 10<sup>8</sup> CFU of each strain to oxidative stress by 10 minutes, with mean of survival of 21.96% and 25,89%, and by 1 hour, with mean of survival of 5.76% and 7.01%. Pre-pandemic strains were less invasive to CACO<sub>2</sub> cells than post-pandemic strains, with mean of invasion of 0.34% and 0.56% respectively. However, the results above were not statistically significant (P≥0.05). The exceptions were in the ability to grow in the egg albumen, in which pre-pandemic strains grew in a higher percentage than post-pandemic, 135% and 125% respectively, and in the capability of survive and multiply in avian macrophages (HD-11), with mean of survival of 398% and 357% respectively. These results were not statistically significant (P≥0.05). In conclusion, post-pandemic strains showed better capability of surviving in acid stress conditions and to invade and multiply in human macrophages better than pre-pandemic strains, which might had contributed to the increase of *S. Enteritidis* isolation from gastroenteritis cases in Brazil after 1994.

**Keywords** Salmonelose, *Salmonella* Enteritidis, Pandemic, Comparison, Phenotypic tests.

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