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Salmonella in Portuguese autochthonous hens breeds: a One Health concern

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Abstract

Background: The genus *Salmonella* is characterized as an enteric pathogen of mammals, reptiles, and birds and one of the most adapted environmental pathogens. These bacteria cause a high number of food-borne salmonellosis annually as a result of eating eggs, poultry and raw or undercooked meat contaminated with *Salmonella* [1,2]. Food-producing animals, in particular chickens, are considered reservoirs of this agent, associated with clinical illness and enormous risk to humans by the food chain. On the opposite, the local breeds in extensive or semi-extensive systems work to mitigate the impacts of intensive farming systems on food safety and public health, and enhance the rural economies. However, the studies on pathogen agents in local breeds are scarce [2,3]. **Objective:** The aim of this study was to determine the presence of *Salmonella* spp. in four Portuguese autochthonous chicken breeds in semi-extensive systems. **Methods:** A total of 87 samples of eggshells were obtained from 30 hens farms (2 to 4 samples/farm) of the following autochthonous breeds: "Pedrês Portuguesa" (n=22), "Amarela" (n=20), "Preta Lusitânica" (n=23) and "Branca" (n=22), in six different regions of Portugal during February of 2023. The *Salmonella* microbiological isolation was performed by the standard method recommended by ISO 6579:2017. Each sample was pre-enriched in Buffered peptone water, followed by incubation in Modified semi-solid Rappaport-Vassiliadis medium supplemented with novobiocin. From the culture obtained, selective solid media are inoculated: Chromagar Salmonella Plus agar®; Xylose lysine deoxycholate agar® and Salmonella-Sighella agar®. **Results:** From the four analyzed autochthonous hen breeds, no growth of characteristic *Salmonella* colonies was observed in the used selective solid media. **Conclusions:** To the best of our knowledge, this is the first study based on these autochthonous breeds, although the number of samples is limited. These preliminary results suggested that hen's eggs are not the most important vehicle of the infection by *Salmonella*, indicating a positive impact on animal health and public health.

Keywords: *Salmonella*; One Health; chicken; autochthonous breeds

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