ABSTRACT

Infections with salmonellas are frequent among mammals and birds, because of theirs wide distribution in nature. All *Salmonella* serotypes are parasites for human and animals. These kinds of germs are isolated from insects, reptiles, birds, mammals, humans and different environmental elements (soil, surface water, forage, food etc.).
In the last years we assist to escalate of scientific papers which report the more frequent incidence of these germs.

Many of these serotypes are isolated from food, forage, nature, intestinal content of animals or human without being involved in pathological processes expressed clinical and immunological. These serotypes presence in organism can be translated as bearer and transmitter status, for different periods of time.

The problem becomes more sensitive in cases of salmonellas infections caused by rare serotypes. This is the reason why we must be careful and ask ourselves if this infection may be potentially pathogen. *Salmonella*'s presence can be related to carrier or disease status and represents a potentially pathogenetic factor for animals and human.

It is admitted that *Salmonella galinarum* and *Salmonella pullorum* represents specific causative agents for enzootic infections in chicken and other fowl, infections characterized by economical losses.

In spite of theirs specificity for chicken they can produce, under some circumstances, infections in other species including human.

Many serotypes without antecedents regarding pathogenicity proved later as potential pathogens for animals and human. Few researches studied the nature of relations established between salmonella's serotypes and host organism.

It seems hard to believe that very pathogenetic serotypes maintain an epifaunal status for a longer or less period.

These aspects leaded to belief that *Salmonellas* without pathogenicity do not induce an antibody response, because they don't interact with the host organism. Between conflict status and pathogenicity exist an interdependence relation.

There are signaled intestinal carrier statuses in swine, with Salmonella *choleraesuis* and in cattle, with *Salmonella enteritidis*, without specific antibodies presence in blood serum.

From various bacteriologic inquires results the complex nature of the relations established between host and germs. Generally these germs don't travel across gastro intestinal barrier; only in special cases they overcame this epifaunal status and penetrate this barrier, in a localized manner, in mesenteric lymph nodes and without immune phenomenon's.

Under some factors influence these dynamic equilibrium statuses can evolve in infectious diseases with septicemia.

That's why epifaunal status and localized infections must be seen as particular forms of the same infectious process. It can be revealed that all *Salmonella* serotypes, no matter their origin, are potentially pathogen. The pathogenicity expression is linked to relations established between hosts and germs, doses ingested, body reactive status, characteristics of the *Salmonellas* species involved, stress factors. *Salmonella* spread is limited by theirs incapacity to infect all animal species.

In the genus *Salmonella* exists several strains with ecologic and pathogenicity specializations, fact without scientific explanation.

The factors responsible for *Salmonella typhosa* limited pathogenicity to human or *Salmonella gallinarum-pullorum* in fowl are not known.

There are *Salmonella* species with a wide pathogenicity as *Salmonella typhimurium*, *Salmonella enteritidis* or species with a narrow pathogenicity.

Almost all fowl, domestic or wild, are carrier for *Salmonella* and manifests infections with variable degrees of the clinical expression. Generally these infections are severe and often deadly. Moreover these infections lay behind alimentary infections in human.

Calnek's observations proofs that 94% from chicks, 87% from turkey's herds and 47% from chickens are *Salmonella* carriers. This huge *Salmonella* reservoir explains the fact that more than one third of salmonella infections in human are caused by flash or egg consume. That's why salmonella infections in fowl turnover in a public health safety problem from an economic interest problem.

Considering fowl products importance, flash and eggs, in human alimentary infections, we initiated a study regarding etiology and frequency of salmonella infections in birds. On the other side we investigated the appearance of the *Salmonella* species in alimentary products for human consumption.

The PhD thesis gathers two distinct chapters. First part based on bibliographic data, represents a synthesis of the specialty literature. This chapter gathers references regarding morphology, taxonomy, epidemiology and diagnostic procedures of the *Salmonella* infections in fowl.

Second part of the PhDs thesis represents the personal researches and gathers five subchapters.

In the fifth chapter are presented ours researches regarding presence and incidence of salmonella species in the incubator, at the adult fowl and active immunized birds with 9r strain.

The bacteriological assay (subchapter 5.1), made on dead embryos, unviable chicks and incubation trash, leaded to isolation of *E. coli* (15.24%), *Proteus vulgaris* (12, 26%), *Staphylococcus aureus* (7, 61%), and *Salmonella species* (4.65%). The salmonella strains identified using biochemical and serological tests are: *Salmonella djugu*, *Salmonella enteritidis*, *Salmonella typhimurium* and *Salmonella inganda* . Most of these strains were isolated from eggs shell after chicks hatch, incubated eggs and in a limited manner from unviable chicks hatched.

In adult birds from modified ovarian follicles, as shape and color, and liver were isolated: *Salmonella enteritidis* (9.32%), *Salmonella typhimurium* (27,9%), *Escherichia coli* (27,9%), Coliforms (9,32%) and *Proteus vulgaris* (27,9%). The microflora structure depended by origin organ. From modified ovarian follicles were isolated *Salmonella enteritidis* and *Salmonella typhimurium*. In liver the predominant germs were the gram negative one represented by coliforms and *E coli*.

The serological exam (subchapter 5.3) used the fast hemagglutination reaction after 13, 26, 34, and 45 weeks from birds' immunization using the 9R strain.

Positive reaction presented 36 chickens (2, 45%), from which 22 individuals responded positive to slow seroagglutination at titers between 1/20-1/640.

Salmonella typhimurium was isolated from birds with oophoritis and fibrinous peritonitis, from ovarian follicles modified as color and shape. These birds presented positive reactions with a titers higher than 1/40. *Salmonella galinarum* strain 9R wasn't isolated.

Bacteriological and serological researches regarding carrier and eliminator status (chapter 6) were done on 20 birds inoculated subcutaneously and intramuscularly with *Salmonella typhimurium* and *Salmonella enteritidis*. These researches show the lack of positive serological reactions, germs absence in uro-genital secretions and germs presence in eggs shell after seventh day after inoculation.

Bacteriological exam of the eggs from bids inoculated, and chicks hatched from those eggs were negative, fact leading us to conclusion that carrier status isn't realized usually. Excreting status was proved after 14th and 21 day after subcutaneously inoculation with *Salmonella enteritidis*.

In chapter 7 are presented epidemiological and clinical researches during a paratyphoid outbreak in a 47405 bird flock, with 15.1% mortality. The outbreak started suddenly, recording a peak after 6-10 days after disease begin. The disorder rised to a plateau and kept this way 5-6 days than dropped vertiginously.

Clinically, paratyphoid infection had an acute evolution with anorexia, polidypsia, diahorrea with water like feces, sometimes with blood stria and death after 24-72 hours.

Chicks necropsy revealed the following macroscopic lesions: internal organs congestion with hemorrhagic aspect, focal necrotic liver and heart lesions, enteritis and unabsorbed yolk.

After isolating the etiologic agent, *Salmonella djugu* was identified using biochemical and serological methods.

Sensitivity for different antimicrobial substances was tested ''in vivo'' using 105 salmonella strains, isolated between year 2002 and 2006 from various pathological materials (dead chicks, eggs shell, adult fowl, feces, incubation waste). From those 33 strains (31, 42%) were isolated from chick's cadavers, 26 strains (24, 75%) from adult chickens, 15 strains (14, 23%) from healthy bird's feces, 18 strains (17, 13%) from eggs shell and 13 strains (11, 19%) from incubation waste.

From the results obtained outcomes the fact that antimicrobial substances activity differ by bacterial strain.

All the *Salmonella djugu* strains (59 strains) were sensitive to: amoxicillin, gentamicin, kanamycine, chloramphenicol. 32 strains were sensitive to erythromycin and nitrofuran. To streptomycin were sensitive only 25 strains.

Researches regarding *Salmonella* presence in fowl flash and organs were done using 490 samples collected from different slaughtering units and commercial units or. From these samples were isolated 18 *Salmonella Spp*. Strains, eight from flesh and ten from organs. The identified strains were: *Salmonella Saint-Paul* (4 strains), *Salmonella enteritidis* (3 strains), *Salmonella typhimurium* (3 strains), *Salmonella agona* (2 strains), *Salmonella djugu* (2 strains), *Salmonella cholerae suis* (2 strains), *Salmonella dublin* (1 strains) şi *Salmonella strains* (1 strain).