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Dynamic of two coliphages in chicken organism towards phage therapy

Oliveira, A (1,2), Azeredo, J (2) and Sereno, R (1)
(1)Controlvet, Lda., Tondela, Portugal
(2)CEB, Universidade do Minho, 470-057 Braga, Portugal
anaoliveira@deb.uminho.pt

E.coli can cause severe respiratory and sistemic infections in chickens, responsible for significant economic losses in the poultry industry. Phages are good candidates to treat bacterial infections as alternative to antibiotics. In order to predict the efficacy of phage therapy, it is important to know its dissemination in the animal body. *In vivo* trials were conducted by infecting chickens with two lytic phages: F258E (*Syphoviridae*) and F61E (*Myoviridae*). 10^6, 10^7 and 10^8pfu were administered orally, by spray and intramuscularly. Birds were euthanised after 3, 10 and 24h and pfu were measured from the supernatants of emulsified lungs and air sac membranes (LS), liver, duodenum and spleen. Both phages were recovered from LS after 10h when administrated orally with 10^7 phages. Conversely, when phages administration was made by spray, it was already possible to recover both phages from LS after 3h, indicating that it reach these tissues faster when inhalated. After 10 and 24h of challenging by spray and orally, respectively, only phage F258E was found in these tissues, suggesting that the residence times of each of the phages in the animal body is different. Both phages were found in the animals duodena after 3h of challenging by spray. The phages only reached the other organs when the administration route was intramuscular. The results suggest that to treat respiratory *E.coli* infections, nasal and oral are promissing administration routes.