

The aim of this thesis is to summarize present knowledge concerning the effects of gut microbiota composition on condition in birds. The effect of gut microbiota on various aspects of animal physiology is currently intensively studied and the understanding of its biomedical importance is a topical theme. However, the majority of the current research is focused on humans and other mammals, and in birds on agriculturally significant species. Therefore, this thesis focuses also on the applicability of results of agriculturally orientated research on free-living birds' study. The results of agricultural research show a high interspecies and intraspecies variability in the effects of certain bacteria on the condition of the host. That should be taken into account when designing experiments in wild-living species. This thesis summarizes current knowledge concerning the effects of bacteria on condition of birds that was gained in correlational and manipulative studies. Manipulative studies include those in which probiotics or antibiotics were given to birds. The main modes of action of probiotic bacteria are also summarized here. One of the aims of this thesis was also to find out the possibilities of using detection of certain bacterial species as a non-invasive method to assess birds' condition. This thesis suggests *Enterococcus faecium*, *Bacillus subtilis* and *Ruminococcus* sp. as markers of a good condition.