

# Microbial community structure in a host-parasite system: the case of Prussian carp and its parasitic crustaceans

MBIOM7

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The aim of the present study was to investigate the microbial community of skin mucus of infected Prussian carp caused by parasitic crustaceans from the genus *Argulus foliaceus* and *Lernaea cyprinacea* in an eutrophic lake with parallel studying of associated microbiota of their parasites and environmental compartments.

## Methods

**Sample collection**  
Malye Chany Lake  
Russia,  
54°36'56.3"N,  
78°12'5.9"E



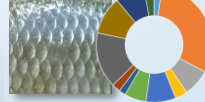
**DNA extraction - NextBio kit**  
**Sequencing - MiSeq Illumina,**  
V3-V4 16S rRNA gene

**Sequence processing and statistical analysis**  
Mothur 1.31.2, QIIME 1.9.1

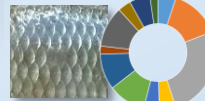


## Microbiota of fish

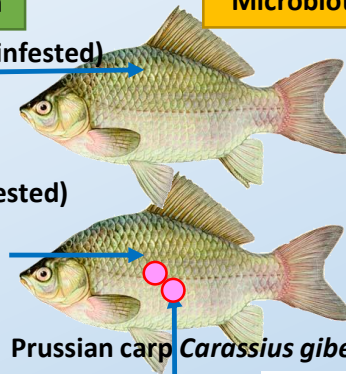
**Skin mucosa (Uninfested)**



**Skin mucosa (Infested)**



**Ulcers**



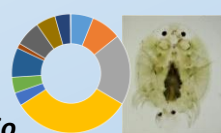
Prussian carp *Carassius gibelio*

## Microbiota of ectoparasites

***Lernaea cyprinacea***



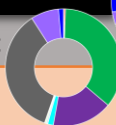
***Argulus foliaceus***



- Acinetobacter
- Corynebacterium
- Polynucleobacter
- Staphylococcus
- Unclassified Comamonadaceae
- Unclassified Sphingobacteriales
- Arcobacter
- Flavobacterium
- Rheinheimera
- Unclassified Aeromonadaceae
- Unclassified Helicobacteraceae
- Vogesella

## Microbiota of environment

**Sediment**



**Water**

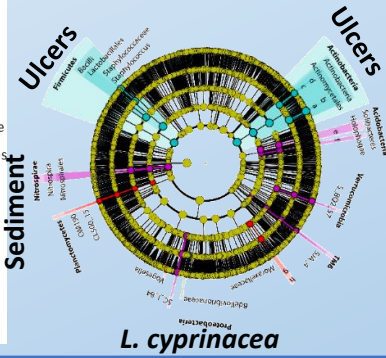


**Reed**



- Arcobacter
- Candidatus Xiphinematobacter
- Crenothrix
- Rhodobacter
- Sinobacteraceae
- Synechococcus
- Thiobacillus
- C39 from the Rhodocyclaceae
- Unclassified Comamonadaceae
- Unclassified Myxococcales
- Unclassified Bacteroidales

## LefSe results



**Conclusion.** The ectoparasites have the potential to alter skin microbiota, which can play a possible role in transmission of secondary bacterial infection in fish, caused by pathogenic bacteria. Significant perturbation of dominant microbiota of skin mucus of unhealthy fish in comparison with healthy fish was registered (ADONIS,  $p \leq 0.05$ ).

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