**Supplementary material**

Suppl. Table 1: Observed frequencies of infection with Haplosporidia and *Vibrio* and their combination; and expected frequencies under corrected Pearson’s chi-square test considering confounding factors.

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| Corrected Pearson’s Chi-square Test |
| *Haplosporidia-Vibrio* | **Observed frequencies:** | **Expected frequencies:** |
| -/- | 342 | 351.17 |
| -/+ | 116 | 106.83 |
| +/- | 207 | 197.83 |
| +/+ | 70 | 79.17 |

(-/-) Non-infected individuals

(-/+) (+/-) Single infected individuals

(+/+) Double infected individuals

Suppl. Table 2: Observed frequencies of infection with *Minchinia tapetis* and *M. mercenariae*-like and their combination; and expected frequencies under corrected Pearson’s chi-square test considering confounding factors.

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| Corrected Pearson’s Chi-square Test |
| *M. tapetis* and*M. mercenariae-like* | **Observed frequencies:** | **Expected frequencies:** |
| -/- | 171 | 166.28 |
| -/+ | 24 | 28.72 |
| +/- | 65 | 69.72 |
| +/+ | 17 | 12.28 |

(-/-) Non-infected individuals

(-/+) (+/-) Single infected individuals

(+/+) Double infected individuals