Arthropods as vector of antibiotic resistant bacteria spreading

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Arthropods are known to be potential vectors of human and animal pathogens and proved to carry a large antibiotic resistant bacterial community. We allocated 38 isolates from the external surfaces of mentioned arthropods. All the studied arthropods were proved to host bacteria, represented by *Staphylococcus* (2 species), *Streptococcus, Enterococcus, Klebsiella, Enterobacter, Proteus,* and *Escherichia, Pseudomonas* on the external surfaces. Among them *S. saprophyticus, S. aureus, P. aeruginosa,* and *K. pneumoniae* are considered to be of high medical importance. The number of bacteria varied from 3.18 log CFU/ml (for *Escherichia* coli isolated from the surface of *Lithobius* sp.) to 5.65 log CFU/ml (for *Pseudomonas aeruginosa* isolated from the surface of *Fannia* sp.). The number of staphylococcii was relatively high (3.91-5.61 log CFU/ml). Among the detected bacteria the frequency isolation of pathogenic bacteria was the lowest: 10% for *Pseudomonas aeruginosa* and 20% for *Klebsiella pneumonia*. The most common species on the external surfaces of the studied arthropods was *Escherichia coli* (frequency isolation 80%).We isolated *Klebsiella pneumoniae* from the surfaces of both Carabidae and Syrphidae representatives. *K. pneumoniae* is now recognized as an urgent threat to human health because of the emergence of multidrug-resistant strains associated with hospital outbreaks and hypervirulent strains associated with severe community-acquired infections. We found *Pseudomonas aeruginosa* to inhabit the surfaces of fly *Fannia* sp. in a large amount (5.65 log CFU/ml). The view is that *P. aeruginosa* is a ubiquitous environmental bacterium that is one of the top three causes of opportunistic human infections. Ten percent of the sampled arthropods were contaminated with two bacteria species, 20% – with three species, and 70% – with four bacteria species. Our samples of flies – *Musca domestica* L. and *Fannia* sp. – were contaminated with three and four bacteria species correspondently, including such pathogenic for humans and animals bacteria as *Staphylococcus saprophyticus and Pseudomonas aeruginosa.*

In total, 9 species of pathogenic and conditionally pathogenic bacteria, viz., *Staphylococcus saprophyticus, Staphylococcus aureus, Streptococcus agalactiae, Enterococcus faecalis, Klebsiella pneumoniae, Enterobacter cloacae, Proteus mirabilis, Escherichia coli,* and *Pseudomonas aeruginosa* were detected on the external surfaces of studied arthropods.