THE PRESENCE OF INSECT AT COMPOSTING

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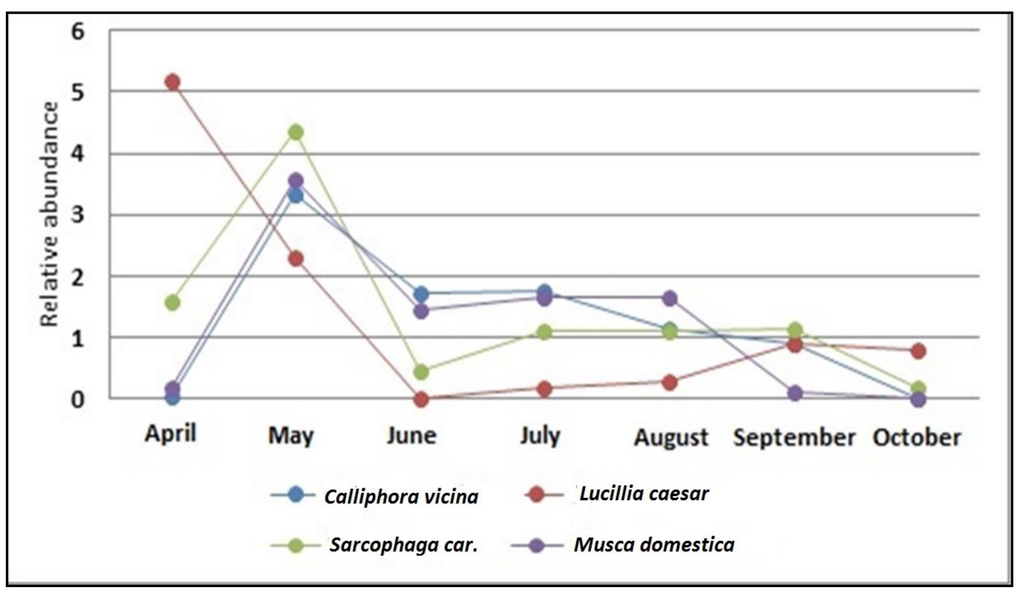
When handling waste, there is always real probability of environmental hazards because during decomposition of biodegradable materials, a lot of microorganisms of autochthonous type is present. Pathogenic bacteria, fungi and their spores can contaminate not only processing plants, but it also can, by wind or vectors, penetrate their surroundings and pose a risk to people, animals and plants. Mainly some species of dipterous insect (Diptera), the imagos of which lay their eggs into waste and also into maturing substrates and larvae of which develop and cocoon, can transmit a plenty of infectious diseases on their bodies or via their digestive tract. Taxonomically, the order divides into several families out of which the most important ones, in context of the issue presented her, are Muscidae, Calliphoridae, Cordyluridae, Scatophagidae, Sarcophagidae, as well as Drosophilidae.

Sarcophaga carnaria L.

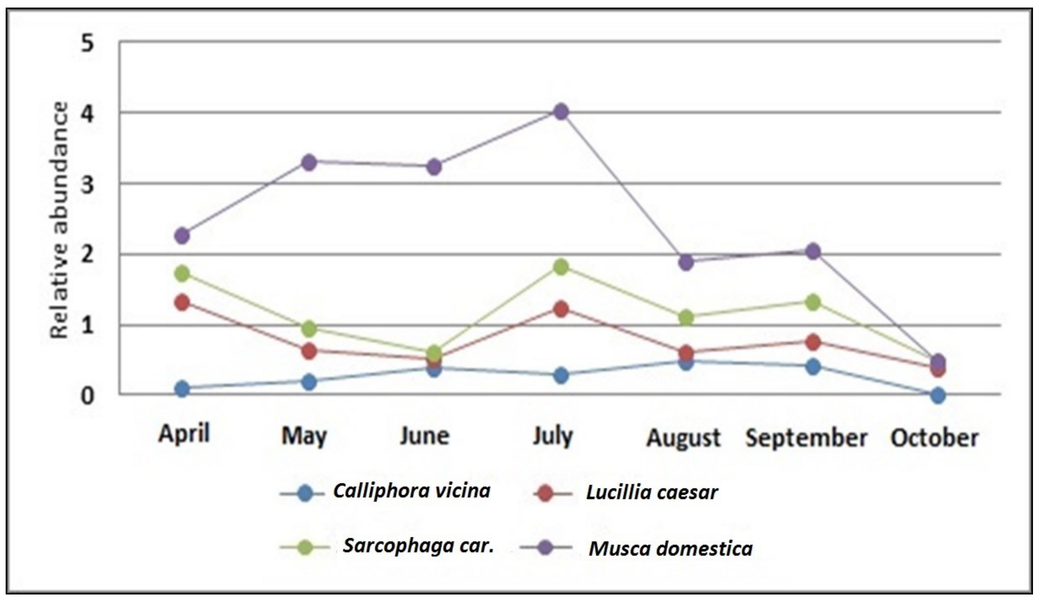
Musca domestica

For evaluating obtained results, relative abundance calculation was chosen. This term of ecological statistics expresses amount of insect individuals of the given species related to certain predetermined type of quantitative sampling method. In this particular case it was the total amount of caught specimens to the total amount of obtained samples. Data obtained via the performed entomologic sampling confirm eventual assumption about abundant occurrence of Diptera during composting. It is evident that amount of Diptera can, mainly during summer months, reach considerable values, namely at premises of industrial composting plants during processing so-called food waste or muck. Even though entire elimination of the environmental risk in question is due to the character of the risk factor – i.e. Diptera – fundamentally impossible, performing protection and elimination precautions during composting biowaste is absolutely necessary because transmission of microbial pathogens via insect can be considered undoubtedly undesirable feature.

The research itself was implemented from April till October 2016 at the premises of a composting plant in Ústecký region in the Czech Republic and simultaneously in the garden of a family house in a garden suburb approximately 20 km far from the composting plant mentioned above. The trapped insects were killed and they were taxonomically determined.



Graph 1: Values of relative abundance – composting plant



Graph 2: Values of relative abundance – home composting unit

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