



## XVIth European Carabidologists Meeting

Sèvre". *P. cupreus* is one of the most abundant carabid species in the study site and throughout most European agroecosystems. It is found in almost all land use types. As many carabid beetles, it is a beneficial insect contributing to restricting pest activity. Surveys were carried out over 7 years using pitfall trap sampling method in 683 fields among the dominant crops in the study site (alfalfa, grassland, sunflower, oilseed rape and winter cereals). *P. cupreus* activity-density was higher in oilseed rape fields than in any other crop type during the whole sampling period. In the other crops, *P. cupreus* activity-density increased when the crop was preceded by oilseed rape the year before while the opposite was observed when preceded by spring crops such as sunflower and maize. Oilseed rape benefited to *P. cupreus* activity-density in neighboring crops. Tillage occurring in autumn had a positive effect on *P. cupreus* activity-density while it was the opposite when tillage occurred in spring.

### Influence of diet composition on the dynamics of stable isotopes in different tissues of ground beetles

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In laboratory experiment the dynamics of stable isotopes ratios ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ) in the tissues of *Pterostichus oblongopunctatus* and *Platynus assimilis* were studied. Four different diets were used: bloodworms, seeds of *Poa pratensis*, mixed diet, without food. Every ten days five males and females of each species were dissected and the samples of muscles (prothorax), chitin (elytra), fat-body, excrements, and gonads were taken. The differences of isotopic composition of gonads and muscles were observed in both species. These differences were significant on animal and mixed diet, but were not clear on seed diet and by fasting. The range of  $\delta^{15}\text{N}$  value measured up to 7‰ in muscles, and to 4‰ in gonads. In muscles the content of both heavy isotopes increased distinctly, however its values were on 2-5‰ lower as compared to diet. In gonads of both sexes on animal and mixed diets the value of  $\delta^{15}\text{N}$  was above than in food on 1-2‰. The mean values of  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  in chitin were relatively stable in both species during whole experiment and not significantly differed from control. Thus we conclude that: (i) in ecological studies  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values must be estimated in the separate tissues that prevent the distortion of results; (ii) the differences in content of stable isotopes in chitin would be used as a criterion in the studies of migrations of carabids; (iii) the individual variations of  $\delta^{15}\text{N}$  value in different tissues are high and can exceed the limit of formal "trophic level" (see Post, 2002; Ikeda et al., 2010).

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