Insects are the largest group of animals. Their evolutionary success is connected with insect abilities to rapid adaptation to the unfavorable environmental conditions, especially stress factors characteristic for winter period. Despite large knowledge about insect overwintering, still little is known about some physiological aspect related with survival of winter, including immune system functioning. The results of our previous research showed, for the first time in beetles, that low temperature influence of activity of humoral and cellular response during winter period. However, the results of this study indicate that cold's influence on immune system functioning differs when the stress factors are induced under laboratory conditions and when individuals for analysis were obtained from the natural environment during the winter period. Probably, these differences were results of simultaneously effect also other stress factors characteristic for winter, including desiccation. Presented research is the continuation of this, above mentioned study. The research will be focused on analysis how desiccation impact on cellular and humoral response of burying beetle *Nicrophorus vespilloides*. In addition, research will be enhanced by evaluation of simultaneous effect of cold on desiccation on beetles immune system.