

**STUDIES ON BIOLOGICAL ACTIVITIES OF EXTRACTS FROM PLANTS  
 OF THE *GERANIUM* FAMILY ON *PIERIS BRASSICAE***

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The conducted studies comprised the analyses of activity of extracts derived from selected plants of the *Geranium* family on some processes of large white butterfly (*Pieris brassicae*) development (oviposition, survival of eggs and caterpillar feeding). The studies included an alcohol and water extracts obtained from the following *Geranium* plants: *Pelargonium x hortorum* Bailey, *Erodium cicutarium* L., *Geranium sanguineum* L., *Geranium palustre* L., *Geranium pratense* L., *Geranium phaeum* L., *Geranium robertianum* L. Studies were carried out in field and laboratory conditions.

The results proved that all tested extracts showed activity against large white butterfly. *Geranium pratense* L. and *Geranium senquineum* L. showed better activity than other *Geranium* plants. Water extracts from these species protected cabbage plants against laying eggs, while applied on eggs caused their mortality (Fig. 1). The analysis of the absolute index of deterrence indicate that alcohol extracts suppressed feeding process better than water extracts. The alcohol and water extracts from *G. pratense* and *G. robertianum* showed the strongest antifidant activity (Fig. 2). The mass gain of caterpillars was stated in all experimental treatments. However, the gains were not high as compared to the control. Alcohol and water extracts from *G. pratense* L. and water extracts from *G. senquineum* L. increased an amount of food put on mass gain of caterpillars (Tab. 1).

Table 1. Influence of extracts from *Geranium* plants on caterpillar feeding of *Pieris brassicae*

Plant	Changes of the body mass (in % to control)				Food consumption per 1mg of the body weight increase (in mg – in % to control)			
	Alcohol extracts		Water extracts		Alcohol extracts		Water extracts	
	in mg	in % to control	in mg	in % to control	in mg	in % to control	in mg	in % to control
<i>Pelargonium</i>	40	47,6	106	126,2	4,4	53,0	4,1	49,4
<i>Erodium cicutarium</i>	24	28,6	32	38,1	6,9	83,7	6,8	81,5
<i>Geranium senquineum</i>	40	47,6	26	30,9	5,6	67,8	11,1	134,3
<i>Geranium palustrae</i>	31	36,6	27	32,1	9,1	108,6	7,8	93,96
<i>Geranium pratense</i>	21	25,1	20	24,2	11,6	140,1	10,6	127,3
<i>Geranium phaeum</i>	24	28,7	27	33,0	8,1	98,7	7,6	91,4
<i>Geranium robertianum</i>	20	23,8	24	28,6	8,0	96,5	5,4	65,1
Control+Sandowit	70	70	70	70	7,9	7,9	7,9	7,9
Control	84	84	84	84	8,3	8,3	8,3	8,3
LSD (0,05)	24,123		30,147		5,592		5,517	

Fig. 1. Influence of water extracts from *Geranium* plants on egg laying of *Pieris brassicae* females

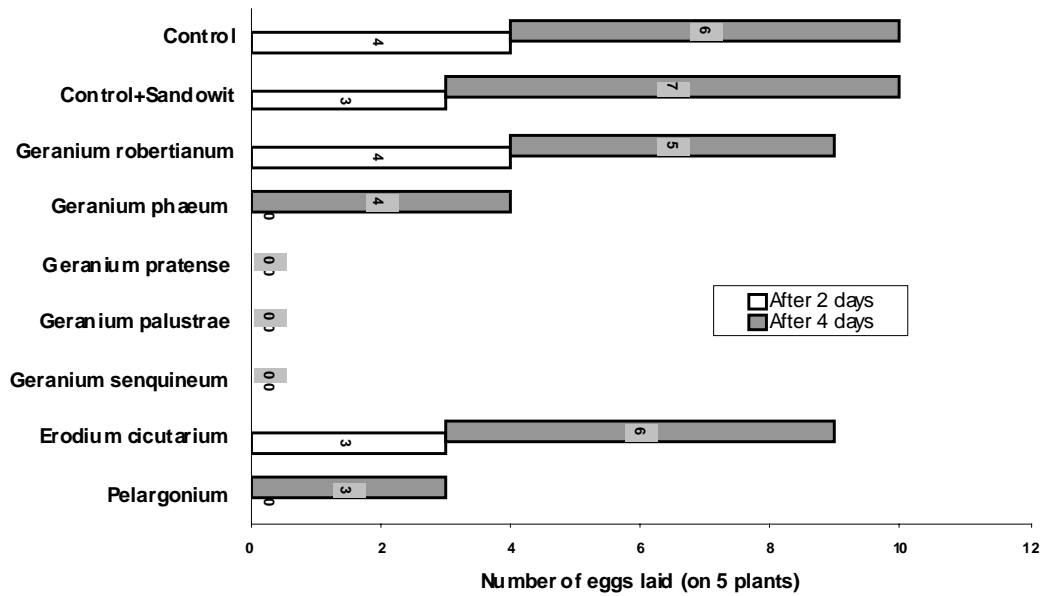


Fig. 2. Absolute index of deterrence

