COMPARISON OF EFFICACY AND ATTRACTIVENESS OF 5 COMMERCIAL GEL FORMULATIONS IN THE CONTROL OF COCKROACHES IN LABORATORY TESTS

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INTRODUCTION

Blatta orientalis **(L.),** ***Blattella germanica*** **(L.),** ***Periplaneta americana*** **(L.) have long been established in Italy in food industry and restaurants, while** ***Supella longipalpa*** **(F.) is to be found more easily in houses. Recently, it has been found** ***Periplaneta australasiae*** **(F.) in different locations, which must now be regarded as settled in Italy (Dutto and Süss, 2013).**

Arenas for test replications

Refuge point with water vial

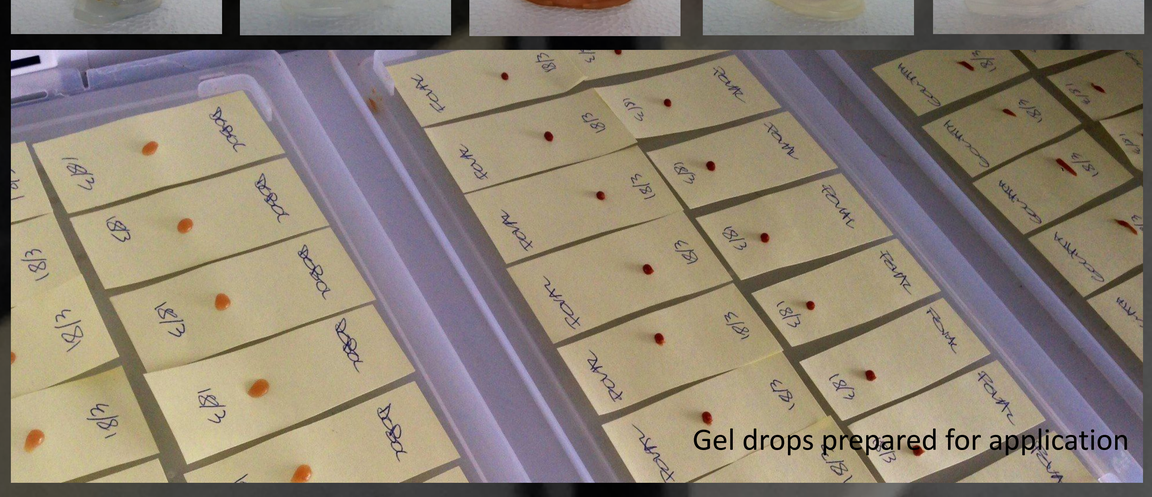
MATERIALS AND METHODS

The species used were ***B. germanica, P. americana, P. australasiae*** **bred for several generations in the Laboratory of Applied Entomology AGROBLU Srl, from captures carried out in Milan (*B. germanica* and *P. australasiae*) and Perugia (*P. americana*). 16 nymphs aged II and III, and 8 adults all shared in 4 replications were used for each test. The limited number of individuals used for each test is justified by the fact that we wanted to avoid any possible competition on food, consisting in 2 drops of gel in each arenas. Inducted mortality has been assessed after 48 hours. The tests were carried out at 24 and 25 °C and RH at 65 and 70%. The formulations used are Avert® (abamectin 0.05%), Goliath® Gel (fipronil 0.05%), Advion® (indoxacarb 0.6%), Foval Gel Scarafaggi (imidacloprid 2,15%) and Dobol® (acetamiprid 2.00%). The tests were carried out in arenas each one by a surface of 1 sq. m. A refuge point and a vial with water have been placed in the centre of each arena, while feed pellets (Purina Pet Food Cats) have been placed in two opposite corners. Following the Manufacturer's instructions, a drop of gel insecticide was placed in each of the other two empty corners of the arenas. In the Control only Purina Pet Food Cats and water was available.**

The data assessed were transformed in % of mortality and subjected to analysis of variance using ARM 9.0 software (GDM Inc.) and Student-Newman-Keuls test (P<0,05) was used to compare the difference between treatment means.

Rating Unit	% OF MORTALITY									
SE Description	AVERT		GOLIATH		DOBOL		ADVION		FOVAL	
PERIAM Nymphs	0	a	6,3	b	12,5	a	12,5	a	56,3	a
PERIAM Adults	0	a	12,5	b	62,5	a	62,5	a	62,5	a
PERIAU Nymphs	2	a	25	b	31,3	a	31,3	a	43,8	a
PERIAU Adults	1,7	a	25	b	0	a	0	a	12,5	a
BLTTGE Nymphs	14,1	a	100	a	37,5	a	37,5	a	56,3	a
BLTTGE Adults	30,9	a	100	a	50	a	50	a	75	a
LSD (P=.05)	1,14t		26,26		57,51		48,27		48,43	
Standard Deviation	0,76t		17,43		38,17		32,03		32,14	

All the products showed a variable activity on the three species of cockroaches considered, but in two cases no mortality was recorded, while in other two cases full mortality was observed. On the base of the mortality percentage achieved after 48 hours only the gel fipronil based showed a statistically significant difference against both stages of *B. germanica,* which was totally controlled. All the other treatments, including fipronil on *P. americana* and *P. australasiae*, recorded a mortality of cockroaches without significant statistical differences.



Gel drops prepared for application

CONCLUSION

The tests carried out, which must be considered as preliminary study, allow to affirm that the different gel formulations currently available in Italy for the control of cockroaches, after 48 hours from their application show a low efficacy with no difference statistically significant among them against *P. americana* and *P. australasiae* at any stage of development. However, gel containing fipronil 0,05% reached an efficacy statistically significant and higher than the other gel formulations against *B. germanica* at both stages of development, while on *P. americana* and *P. australasiae*, achieved an efficacy statistically similar to the other 4 gel formulations tested.