



Intraspecific variability in the parasitoid *Trichogramma chilonis*: assessing the role of hybridization in the framework of a biological control program

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INTRASPECIFIC VARIABILITY IN A PARASITOID INSECT: CONTRASTING EFFECTS OF HYBRIDIZATION ON FITNESS

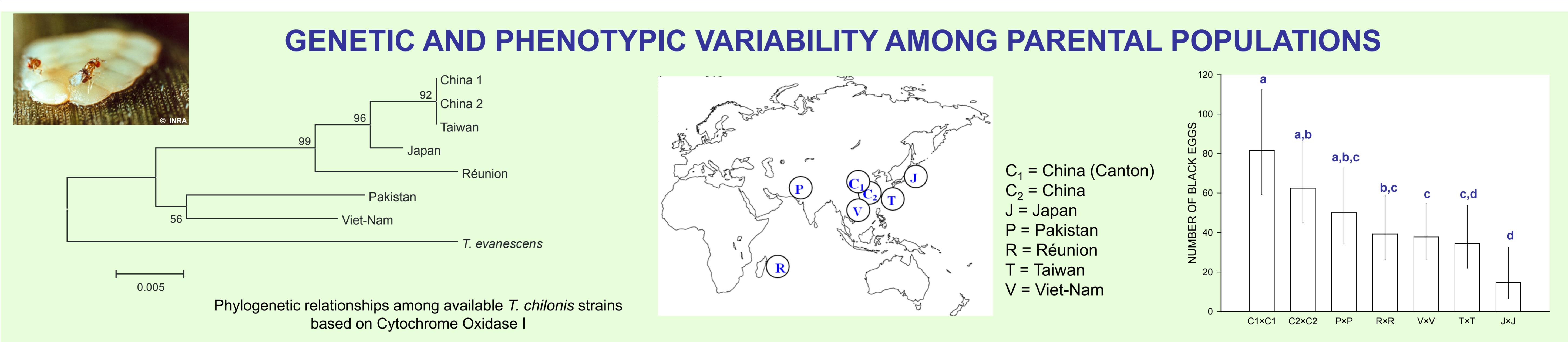
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Consequences of hybridization on fitness = a controversial topic

in evolutionary biology and applied ecology:
speciation, biological invasions, biological control, conservation biology

CASE STUDY: THE EGG PARASITOID *TRICHOGRAMMA CHILONIS*, A CANDIDATE BIOCONTROL AGENT



HYBRIDIZATION SUCCESS = MATING COMPATIBILITIES + HYBRID FITNESS

MATING COMPATIBILITIES

Reproductive isolation (intra- vs. inter-population crosses)

I_{PSI} Index

I_{PSI} = -1 ⇒ only inter-population crosses; I_{PSI} = 0 ⇒ random mating; I_{PSI} = +1 ⇒ only intra-population crosses

	C ₁	C ₂	J	P	R	T	V
C ₁		-0.014 ± 0.112	0.114 ± 0.126	0.572 ± 0.085*	0.114 ± 0.114	-0.025 ± 0.109	0.962 ± 0.038*
C ₂			0.261 ± 0.136	0.425 ± 0.109*	0.010 ± 0.114	-0.074 ± 0.111	0.941 ± 0.049*
J				0.369 ± 0.132*	0.153 ± 0.125	0.119 ± 0.127	0.812 ± 0.079*
P					0.643 ± 0.073*	0.5701 ± 0.072*	0.642 ± 0.067*
R						0.011 ± 0.111	0.945 ± 0.045*
T							0.961 ± 0.039*

Reproductive isolation in the Pakistani & Vietnamese strains

⇒ Congruence with phylogeny

Asymmetry of crosses ($\varphi_A \times \delta_B$ vs. $\varphi_B \times \delta_A$)

I_{PSI} Index

I_{PSI} = 1 ⇒ Symmetric mating compatibilities; I_{PSI} ≠ 1 ⇒ Asymmetric mating compatibilities

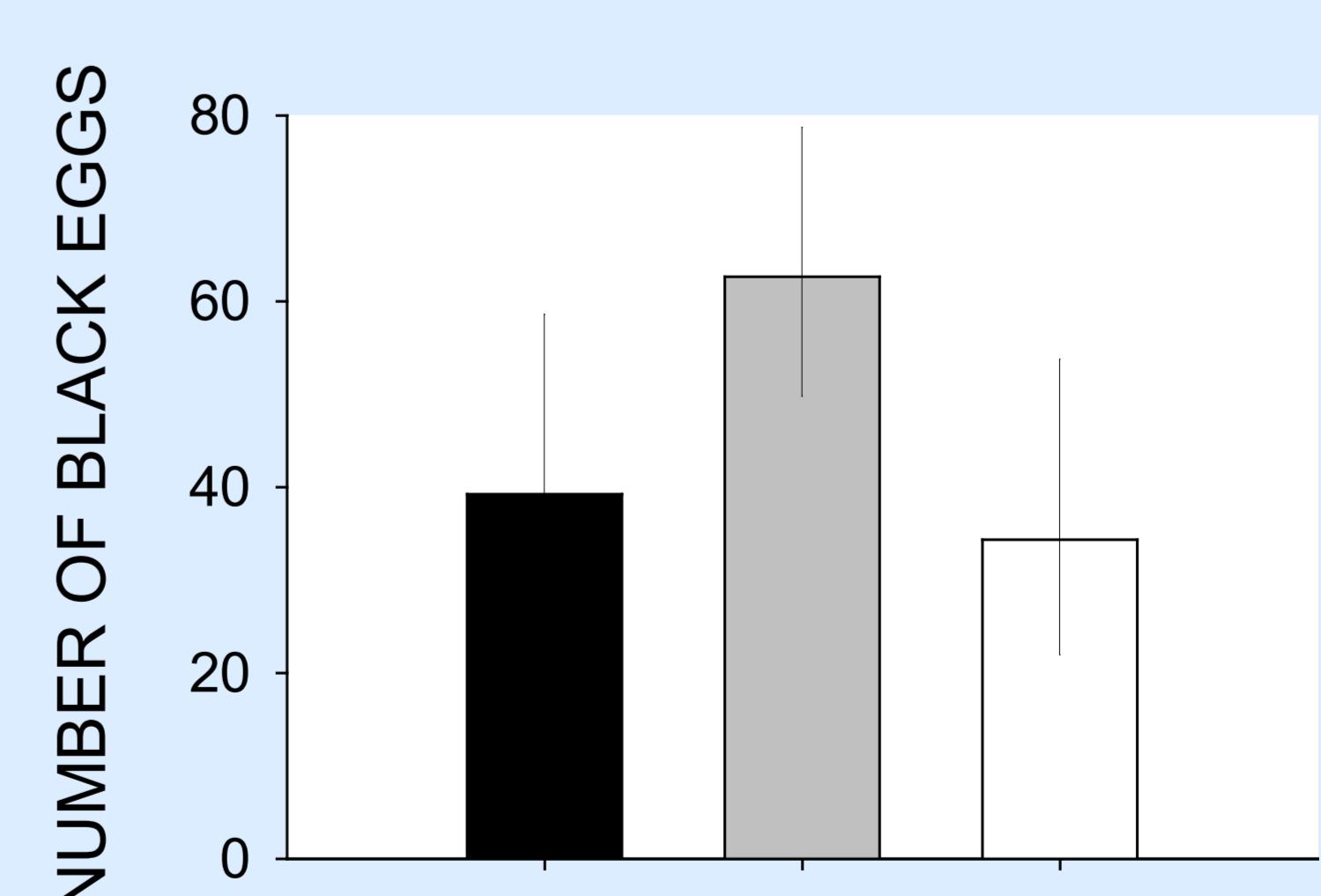
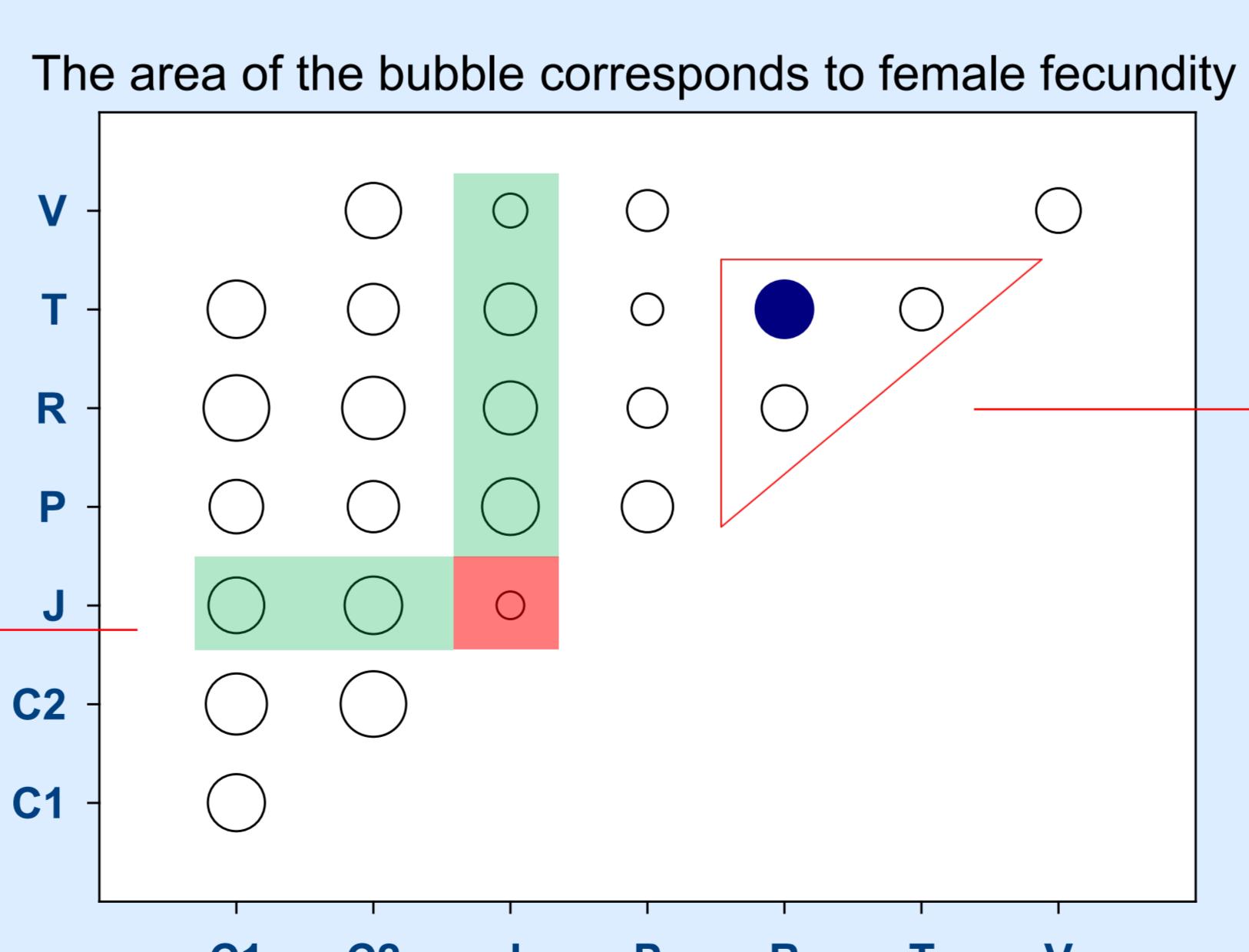
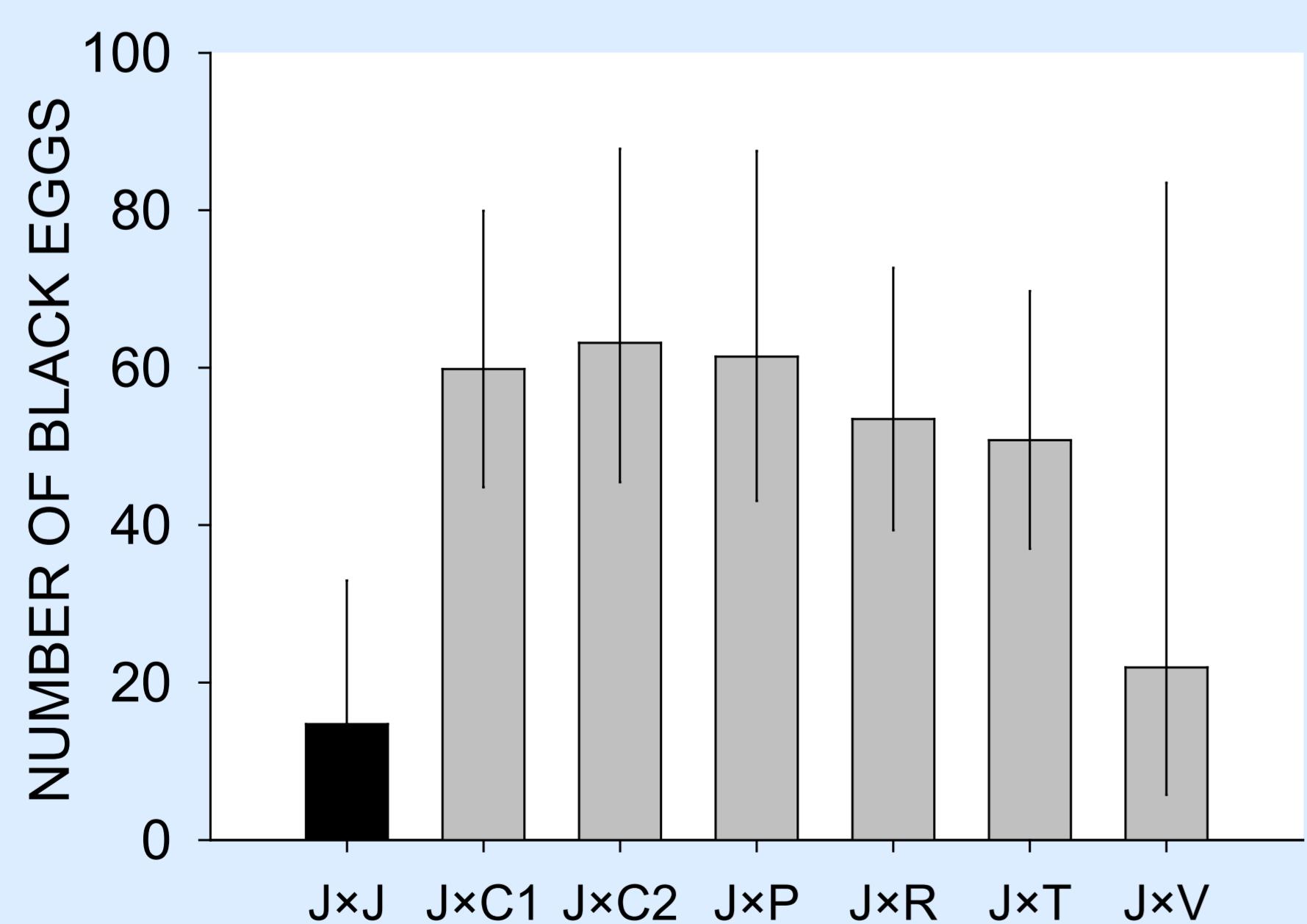
	C ₁	C ₂	J	P	R	T	V
C ₁		1.008 ± 0.039	0.985 ± 0.077	4.302 ± 1.517*	0.987 ± 0.064	0.999 ± 0.035	0.426 ± 0.617
C ₂				1.299 ± 0.412	3.2066 ± 1.491*	1.002 ± 0.041	1.001 ± 0.037
J					0.886 ± 0.221	0.894 ± 0.117	0.994 ± 0.083
P						0.091 ± 0.125*	0.091 ± 0.125*
R							1.002 ± 0.038
T							0.4387 ± 0.618

Asymmetric crosses involving the Pakistani strain

Ongoing divergence?

⇒ Presence of reproductive manipulators?

HYBRID FITNESS



Variable outcomes of hybridization on fitness

Opportunities to exploit *a posteriori* the positive effects of hybridization
But: Can we really predict *a priori* the consequences of hybridization?