

PREDATION EFFICACY OF CYCLOPOID COPEPODS AGAINST *Aedes* MOSQUITOES IN NORTHERN ITALY

Rapid colonization of northern Italy by *Aedes albopictus* and *Aedes koreicus*, two invasive mosquito species, potentially zoonotic vectors.¹

Cyclopoid copepods, natural predators of mosquito larvae. Differences in predation behavior observed in different populations of the same species worldwide.²

Macrocyclus albidus and *Mesocyclops leuckarti*, common in lentic habitats in northern Italy. Only one study carried out on the use of *M. albidus* against *Ae. albopictus* in Italy.³ No copepod species previously tested against *Ae. koreicus* larvae.

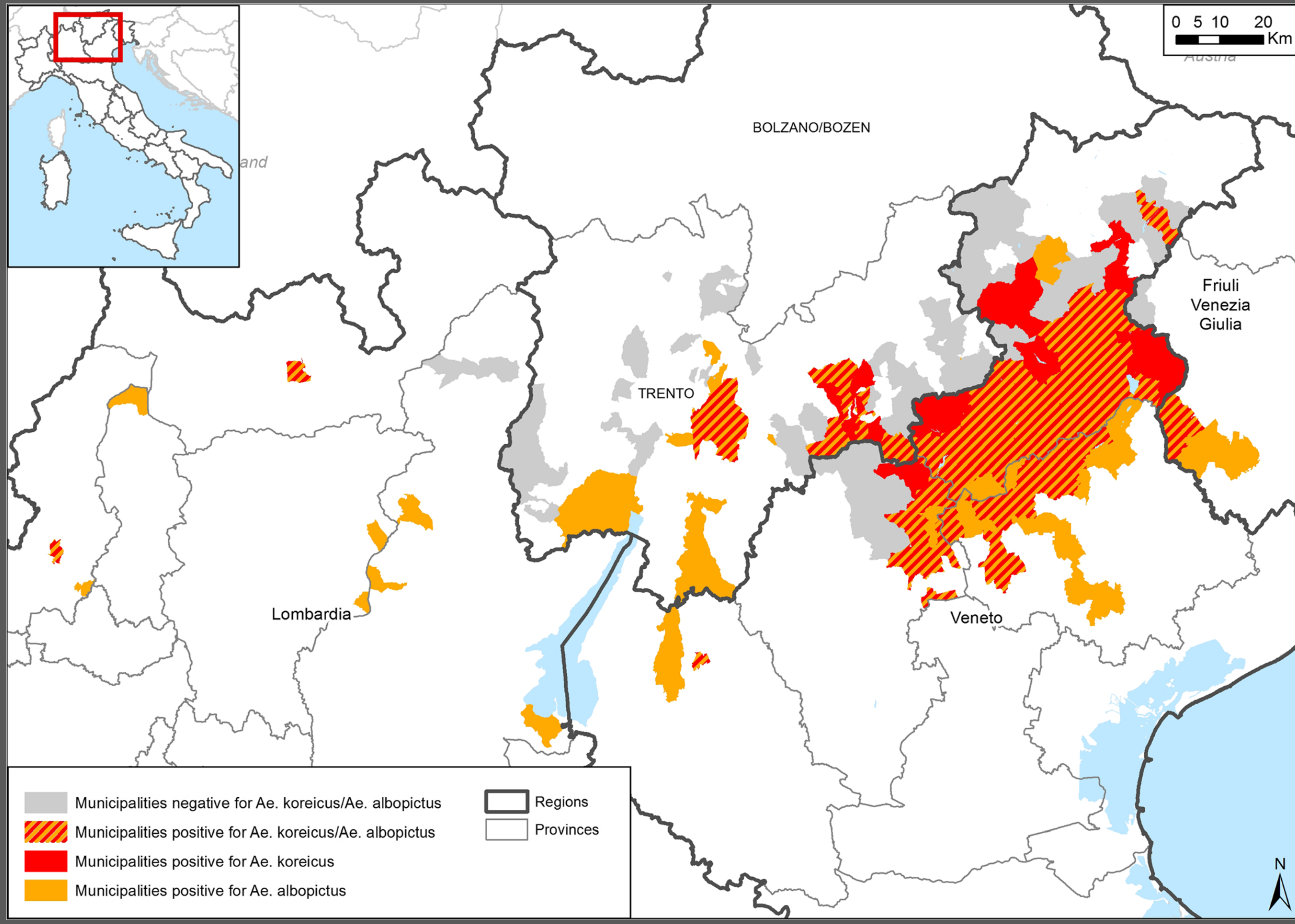


Fig. 1 Map of municipalities positive for the presence of *Aedes koreicus*, *Aedes albopictus* and their overlapping areas in northern Italy, 2011–2015 (from Montarsi *et al.* 2015).

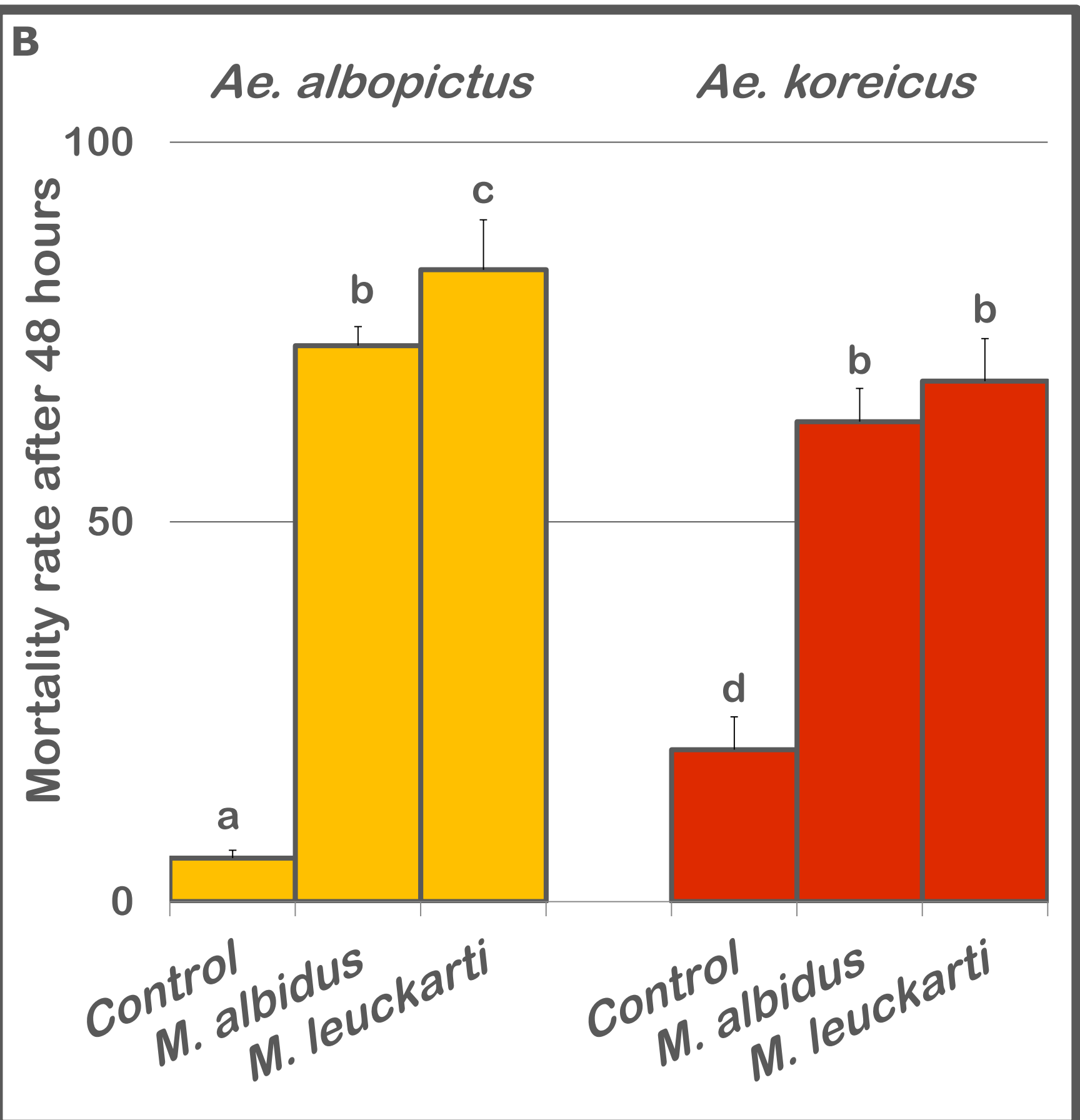
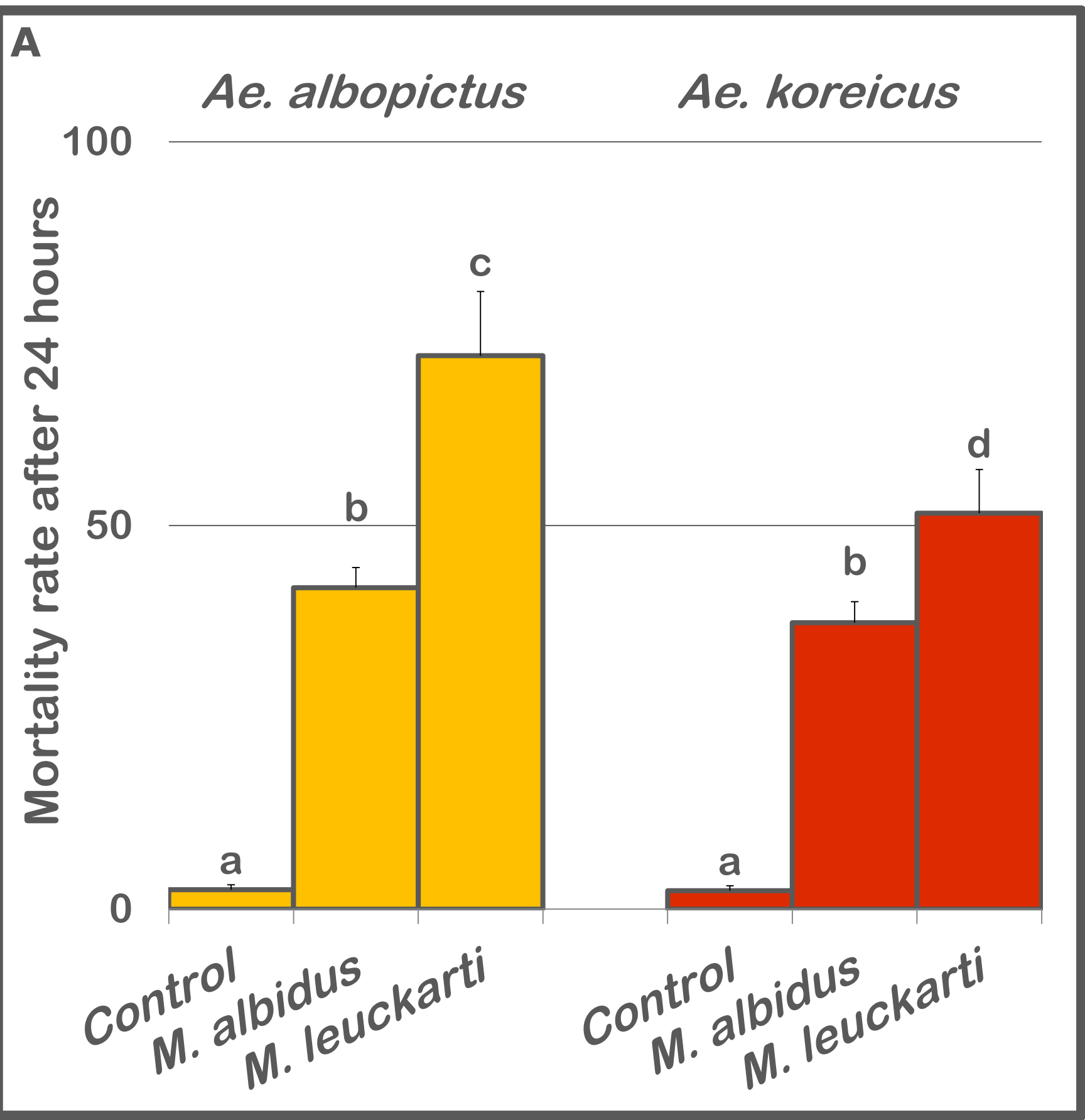


Fig. 3. Mortality rates (mean \pm standard error) of the mosquito larvae after 24 (A) and 48 hours (B).

Pairwise comparison between each combinations of treatment/control, copepod species and mosquito species were tested using the Mann-Whitney test. Significant differences ($P < 0.05$) are represented by different letters (a, b, c, d).

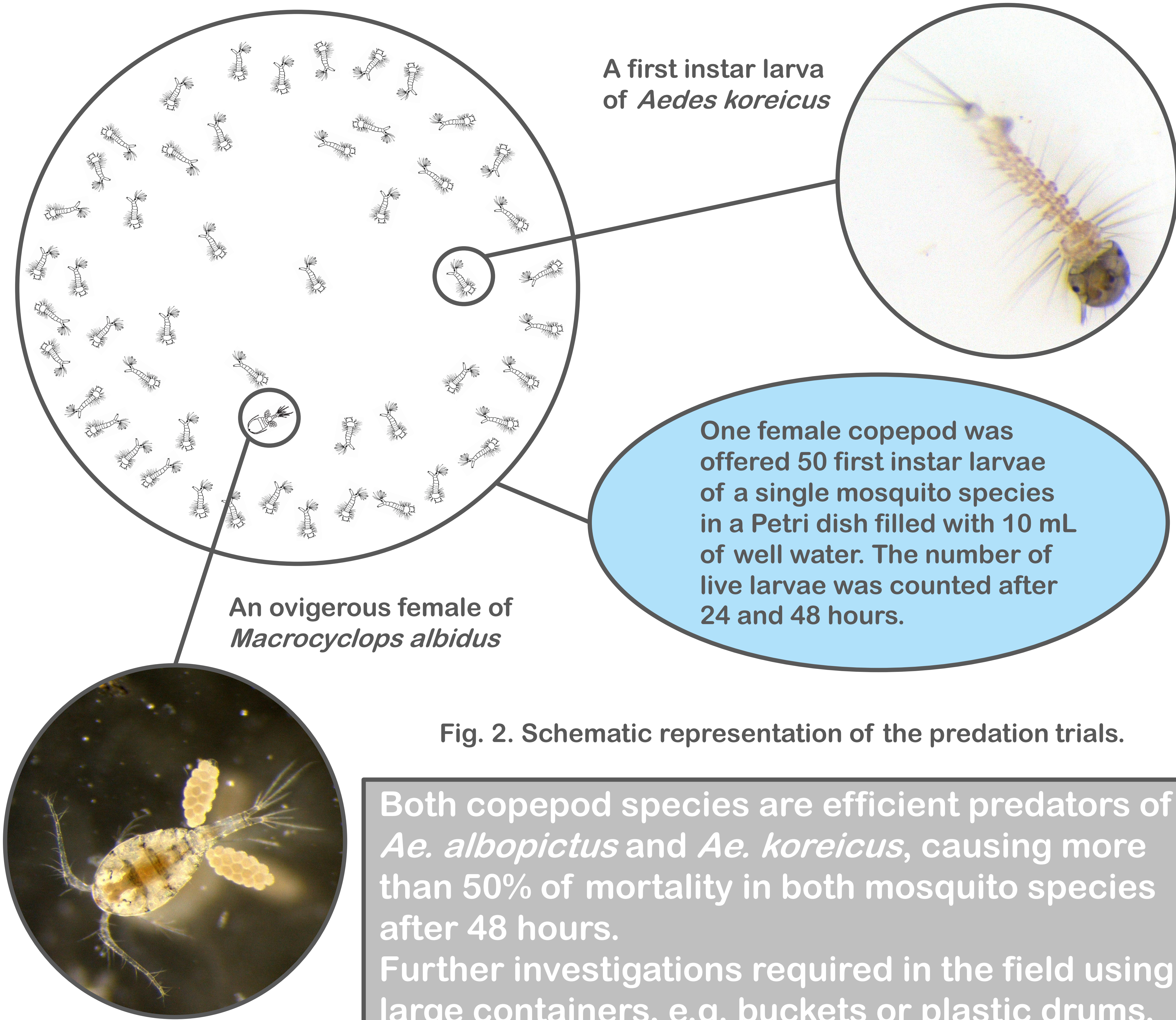
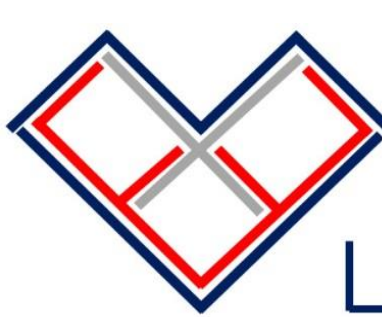


Fig. 2. Schematic representation of the predation trials.

Both copepod species are efficient predators of *Ae. albopictus* and *Ae. koreicus*, causing more than 50% of mortality in both mosquito species after 48 hours. Further investigations required in the field using large containers, e.g. buckets or plastic drums.

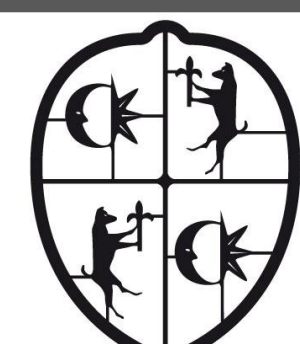
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¹Montarsi F. *et al.* 2015. Current distribution of the invasive mosquito species, *Aedes koreicus* [*Hulecoeteomyia koreica*] in northern Italy. *Parasites & Vectors*, 8, 614.
²Marten G.G. & Reid J.W. 2007. Cyclopoid copepods. *Journal of the American Mosquito Control Association*, 23, 65-92.
³Veronesi R. *et al.* 2015. *Macrocyclus albidus* (Copepoda: Cyclopidae) for the biocontrol of *Aedes albopictus* and *Culex pipiens* in Italy. *Journal of the American Mosquito Control Association*, 31, 32-43.