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Short Communication

Potential Impact of *Aedes Albopictus* (Skuse,1894), an Arbovirus and Nematode Vector, on Human Public Health

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Abstract

A review outlines the ecology and public health implications of Aedes albopictus as a vector of arboviruses and nematodes. Surveillance and control strategies are discussed.

Keywords:
Aedes albopictus (Skuse,1894); arbovirus; nematode; vector-borne diseases; public health

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Introduction

Mosquitoes *Aedes* (Diptera: Culicidae) are responsible for transmission of some diseases of strong impact on individuals and public health, namely Yellow Fever, Dengue, Chikungunya Fever, and Dirofilariasis. In the last few years an expansion has occurred of the geographical distribution of *Aedes* mosquitoes into the areas where it had already been recorded as well as the introduction of some species in new continents and countries. On the other hand, some competition between *Ae. albopictus* (Skuse, 1894) and *Ae. aegypti* (Linnaeus, 1762) has been observed. Here we give an overview of the dispersion of *Aedes albopictus* in the world and call attention to:(i) recent studies that we have considered important to attempt new opportunities for disease control transmitted by this mosquito; (ii) the necessity for surveillance of this species, considering its constant dispersion and capacity as a vector of causal agents of diseases for humans, namely virus and nematode.

Originating in tropical forests of South East Asia, *A. albopictus* (the Asian tiger mosquito, or forest day mosquito) has shown a large expansion throughout the world (Europe, Middle East, Asia and Australasia, North, Central America and Caribbean, South America and Africa) principally through the use of used tyres and plant pots [1] as breeding grounds. In Europe: i) the first record of *A. albopictus* was in Albania in 1979 [2]; ii) (Kia) 1990 found it in Italy and it is now established in the country [3]; iii) in 1999 it was recorded in France; iv) since 2000 it has become established in Albania, Italy and on the Cote d' Azur in France, and it was introduced in Greece, Spain, Balkan countries, Switzerland, Netherlands, Malta,Germany and Portugal [4,5,6,7,8,9,10,11]. In 2007, [12] have foreseen that: "*A.albopictus* is most likely to become established in Portugal as well as the eastern Adriatic Coast, eastern Turkey and the Caspian Sea Coast of Russia".

Another situation that deserves to be considered is the competition between species which can change the entomological fauna at short term or at medium/long term. This competition was already been observed for example, between *A. albopictus* and *A. aegypti* in Madagascar, where *A. aegypti* has become rare, contrasting with what was previously observed, this change being predominantly driven by human activities and the rainfall regime that provide suitable breeding sites for this highly antropophilic mosquito [13]. Considering that the public health importance of *A. albopictus* is demonstrated (role as vector of Dengue, Chikungunya, yellow fever virus, and of *Dirofilaria* spp.) there is the need to control this mosquito in areas where it is established and the surveillance for this species be maintained in all areas where there is a risk of introduction. Fortunately, the scientific community continues investigating possible methods for control of this mosquito as is shown in the publication of [14]. In this publication the authors have concluded that "our findings showed that the *A. pinnata* bioactive molecules can be effective as larvicides for *Ae. albopictus* mosquito vector control programs. Finally, this study suggests that future research work can be conducted on the field evaluation of its larvicidal effectiveness against *Ae. albopictus* species for environmentally safer botanical insecticide inventions"

Competing Interests

The authors have declared that no competing interests exist.

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