



Review

Systematic Review of the Ovitrap Surveillance of *Aedes* Mosquitoes in Brazil (2012–2022)

Raquel Fernandes Silva Chagas do Nascimento ^{1,2,*} , Alexandre da Silva Xavier ³ , Tania Ayllón Santiago ^{2,4,5,*} , Daniel Cardoso Portela Câmara ⁶ , Izabel Cristina dos Reis ⁷, Edson Delatorre ⁸, Patrícia Carvalho de Sequeira ⁹, Vitor Henrique Ferreira-de-Lima ^{1,10}, Tamara Nunes Lima-Camara ¹⁰ and Nildimar Alves Honório ^{1,2,*}

- ¹ Laboratório das Interações Vírus Hospedeiros-LIVH, Instituto Oswaldo Cruz, Fundação Oswaldo Cruz, Rio de Janeiro 21040-360, Brazil; victorhenriquelima274@gmail.com
 - ² Núcleo Operacional Sentinela de Mosquitos Vetores-Nosmove/Fiocruz, Fundação Oswaldo Cruz, Rio de Janeiro 21040-360, Brazil
 - ³ Laboratório de Mosquitos Transmissores de Hematozoários-LATHEMA, Instituto Oswaldo Cruz, Fundação Oswaldo Cruz, Rio de Janeiro 21040-360, Brazil; alex_sxavier@yahoo.com.br
 - ⁴ Departamento de Sanidad Animal, Facultad de Veterinaria, Universidad Complutense de Madrid, 28040 Madrid, Spain
 - ⁵ Centro de Vigilancia Sanitaria Veterinaria (VISAVET), Universidad Complutense de Madrid, 28040 Madrid, Spain
 - ⁶ Programa de Computação Científica-PROCC/Fiocruz, Fundação Oswaldo Cruz, Rio de Janeiro 21040-360, Brazil; dcpcamara@gmail.com
 - ⁷ Instituto de Comunicação e Informação Científica e Tecnológica em Saúde-ICT/ Fiocruz, Fundação Oswaldo Cruz, Rio de Janeiro 21040-360, Brazil; izabio2005@gmail.com
 - ⁸ Laboratório de Genômica e Ecologia Viral, Centro de Ciências da Saúde, Universidade Federal do Espírito Santo, Vitória 29075-910, Brazil; edson.delatorre@ufes.br
 - ⁹ Laboratório de Arbovírus e Vírus Hemorrágicos, Instituto Oswaldo Cruz, Fundação Oswaldo Cruz, Rio de Janeiro 21040-360, Brazil; patiseq@gmail.com
 - ¹⁰ Departamento de Epidemiologia, Faculdade de Saúde Pública, Universidade de São Paulo, São Paulo 01246-904, Brazil; tammylimacamara@gmail.com
- * Correspondence: raquelfscnascimento@gmail.com (R.F.S.C.d.N.); tayllon@ucm.es (T.A.S.); nildimar.honorio@ioc.fiocruz.br (N.A.H.)



Academic Editors: Kelvinson Fernandes Viana and Alex Sander R. Cangussu

Received: 22 May 2025

Revised: 23 July 2025

Accepted: 26 July 2025

Published: 28 July 2025

Citation: Fernandes Silva Chagas do Nascimento, R.; da Silva Xavier, A.; Ayllón Santiago, T.; Câmara, D.C.P.; dos Reis, I.C.; Delatorre, E.; de Sequeira, P.C.; Ferreira-de-Lima, V.H.; Lima-Camara, T.N.; Honório, N.A. Systematic Review of the Ovitrap Surveillance of *Aedes* Mosquitoes in Brazil (2012–2022). *Trop. Med. Infect. Dis.* **2025**, *10*, 212. <https://doi.org/10.3390/tropicalmed10080212>

Copyright: © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Abstract

Background: Arthropod-borne diseases primarily affect tropical and subtropical regions, exhibiting seasonal patterns that peak during hot and rainy months when conditions favor mosquito vector proliferation. Factors such as high temperatures, elevated humidity, rainfall, urbanization, and the abundance of natural and artificial breeding sites influence *Aedes* vector dynamics. In this context, arboviruses pose significant public health challenges, likely worsened by global warming. In Brazil, *Aedes* (*Stegomyia*) *aegypti* (Linnaeus, 1762) is the primary vector for yellow fever, dengue, chikungunya, and Zika. *Aedes* (*Stegomyia*) *albopictus* (Skuse, 1894) is an important global arbovirus vector and is considered a potential vector in Brazil. Entomological surveillance of these species often uses oviposition traps targeting immature stages. Evaluating studies that use ovitraps to collect *Ae. aegypti* and *Ae. albopictus* egg is essential for improving mosquito surveillance strategies. This study systematically reviewed peer-reviewed articles on ovitrap-based surveillance of *Aedes* mosquitoes in Brazil, published in Portuguese and English from 2012 to 2022. The findings suggest that ovitraps are an effective method for detecting the presence or absence of *Ae. aegypti* and *Ae. albopictus*, serving as a reliable proxy for estimating mosquito abundance in Brazilian contexts.

Keywords: *Aedes aegypti*; *Aedes albopictus*; arboviruses; ovitraps; surveillance; Brazil

1. Introduction

Arthropod-borne viruses (arboviruses), including yellow fever, dengue, Zika, and chikungunya, are transmitted by hematophagous mosquitoes and pose a major public health challenge in tropical and subtropical regions, including Brazil [1–3]. The primary vectors of these arboviruses to humans are the mosquito species *Aedes (Stegomyia) aegypti* (Linnaeus, 1762) and *Aedes (Stegomyia) albopictus* (Skuse, 1894) (Diptera: Culicidae) [4]. During the transmission cycle, female mosquitoes acquire the virus through a blood meal from an infected vertebrate host and, following viral replication, can transmit the pathogen to another host [1,5,6]. Arbovirus transmission in *Ae. aegypti* and *Ae. albopictus* occurs via horizontal or vertical pathways. Horizontal transmission involves virus acquisition through viremic vertebrate hosts. Blood feeding is associated with the hematophagous behavior of females needed for egg maturation, and venereal transmission entails sexual transfer of the virus between infected and uninfected partners [6–10]. Vertical transmission, in which the virus is passed from infected females to their offspring, is critical for arbovirus persistence [5,10,11]. It can occur through three modes: transovarial transmission (infection of germ cells before chorion formation), transovum transmission (infection during ovulation of chorionated eggs), and oocyte surface contamination (adherence of the virus to the chorion, remaining through hatching and infecting the emerging larvae) [5].

The primary arbovirus vector, the urban and semi-urban *Ae. aegypti*, was introduced into Brazil during the 18th and 19th centuries, likely as a result of the African slave trade [4]. Now widespread across the country, *Ae. aegypti* is closely associated with human populations because of its anthropophilic behavior and preference for laying eggs in artificial containers, such as abandoned tires, plastic buckets, glass bottles, and dish plates [4,12–14]. This species disperses rapidly and favors oviposition in residential and peridomestic areas, where females locate standing water and lay eggs just below the surface [1,15–18]. If the water evaporates, the eggs can remain viable for up to a year [19], reactivating upon renewed contact with water. Adult mosquitoes are most active during early morning and dusk, coinciding with peak host-seeking activity for blood meals [4,20].

The potential arbovirus vector *Ae. albopictus* is considered the most invasive mosquito species worldwide because of its adaptability and efficient dispersal capacity [15,21]. First recorded in Brazil in 1986 in the state of Rio de Janeiro, this species was likely introduced via commercial trade routes from one or more Asian countries [22–24]. Despite its potential role in dengue virus transmission, *Ae. albopictus* remains underprioritized in Brazil's epidemiological surveillance strategies [3,25]. Nevertheless, this species should not be overlooked, especially given recent studies demonstrating its susceptibility to infection and ability to transmit dengue and chikungunya viruses through vector competence assays [25–27]. *Aedes aegypti* and *Ae. albopictus* are sympatric species capable of coexisting in the same environment, often exploiting distinct breeding sites shaped by human activity, particularly in peridomestic and transitional urban–rural settings [4,15,22].

Entomological surveillance of *Ae. aegypti* and *Ae. albopictus* involves the use of various vector monitoring strategies [28]. Different methods are applied to detect both immature and adult stages of these *Aedes* species. Therefore, employing a highly sensitive approach is essential for the success of surveillance programs targeting these vectors [29–31]. One of the most sensitive and widely adopted methods is the oviposition trap, commonly referred to as an ovitrap [32]. First described in 1965 and improved in 1966 [33], the ovitrap typically consists of wooden paddles used as oviposition substrates and has been extensively employed to detect mosquito populations in specific areas [29,30,32]. Ovitrap have been recognized as valuable surveillance tools [34], offering a low-cost means to gather detailed data on mosquito population dynamics [31,35]. They are also used to monitor the geographic distribution, density, frequency, and seasonal variation of mosquito

populations [29,36,37]. By quantifying collected eggs, ovitraps contribute significantly to detecting the presence or absence of *Ae. aegypti* and *Ae. albopictus* [28,38]. Additionally, they aid in identifying arbovirus risk factors using *Aedes* egg density indices [39,40] and support the development of efficient surveillance systems. Although ovitraps do not directly assess adult mosquito populations, they effectively capture population trends and fluctuations [31].

In Brazil, ovitraps have been evaluated in multicenter entomological surveys across various municipalities and compared to other mosquito trapping methods [31,41]. Additionally, the Brazilian Ministry of Health has published several documents on ovitrap implementation and recently included ovitraps among its recommended strategies for entomological surveillance in the updated Guidelines for the Prevention and Control of Urban Arboviruses, advocating their use nationwide [42,43]. In this context, the present study is a systematic review of publications reporting Brazilian research that employed ovitraps to monitor *Aedes* populations, specifically *Ae. aegypti* and *Ae. albopictus* published from 2012 to 2022. The primary objective is to synthesize surveillance data obtained through this oviposition-based method.

2. Materials and Methods

This systematic review followed the PICO strategy (Population, Intervention, Comparison, and Outcome) [44]. Inclusion criteria encompassed peer-reviewed scientific articles published in open-access journals from 2012 to 2022 that reported studies using ovitraps for *Aedes* monitoring in Brazil. Dissertations, theses, conference presentations, websites, manuals, booklets, and other non-peer-reviewed sources were excluded. The review included publications in Portuguese or English that specifically addressed *Ae. aegypti* and *Ae. albopictus*.

Literature searches were conducted across five indexed databases and web search engines: Scientific Electronic Library Online–SciELO (<http://www.scielo.org>), PubMed–Medline (<https://pubmed.ncbi.nlm.nih.gov/>), LILACS (<https://lilacs.bvsalud.org>), Science Direct (<https://www.sciencedirect.com/>), and Google Scholar (<https://scholar.google.com.br/?hl=pt>). These platforms were accessed at different times during the years 2023 and 2024. Two search profiles were used to identify ovitrap studies (Figure 1): one with Portuguese terms and one with their English equivalents. The Portuguese terms included “ovitrampas,” “*Aedes*,” and “Brasil,” while the English terms were “ovitraps,” “*Aedes*,” and “Brazil.” All terms were combined using the Boolean operator “AND.” The terms “ovitrampas” and “ovitraps” were the only ones not indexed in the Health Sciences Descriptors (DeCS) vocabulary [45].

Data Analysis

Descriptive analyses were conducted using R version 4.4.3 [46]. The dataset was summarized using frequencies and proportions, and visualizations were created to illustrate the distribution of publications over time, study durations, regional geographic coverage, and temporal trends in entomological indicators. Mean values of the Ovitrap Positivity Index (OPI) and Egg Density Index (EDI) were manually extracted from studies that reported both indicators and were included in the trend analysis. For the temporal smoothing trends of the entomological indicators, a midpoint year was calculated for each study by averaging the reported start and end years of data collection. These midpoint values were then used as a temporal reference for plotting OPI values over time. Smoothing trends for entomological indicators were modeled using the LOESS non-parametric regression method [47]. Data visualizations were produced using the ggplot2 package and related extensions [48]. Spatial analyses were based on official Brazilian geographic boundaries from the geobr package [49].

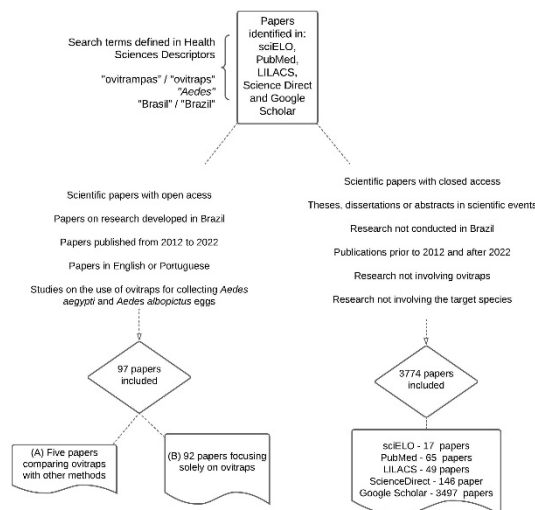


Figure 1. Schematic overview of procedures adopted in the systematic literature review reported.

3. Results

A total of 3871 articles were initially identified. After applying the inclusion and exclusion criteria, 698 papers in Portuguese and 3076 in English were excluded. Ultimately, a total of 97 articles were selected across the five search platforms, including seventy-five published in English, nineteen articles in Portuguese, and three in both languages.

An analysis of the distribution of articles by language and indexing platform revealed a predominance of English-language publications, with broad dissemination across international databases. Among the seventy-five English-language articles, thirty-seven were indexed on multiple platforms, thirty-four were retrieved exclusively from Google Scholar, and four were found in PubMed. Of the nineteen Portuguese-language articles, fourteen were available on Google Scholar, four were indexed on multiple platforms, and one was found in PubMed. Additionally, two bilingual articles (Portuguese/English) were identified in Google Scholar, and one was indexed in SciELO. These findings suggest some overlap across platforms, particularly for English-language publications, indicating greater visibility and accessibility through widely used indexing services. The distribution of articles by language and indexing platform is illustrated in Figure 2.

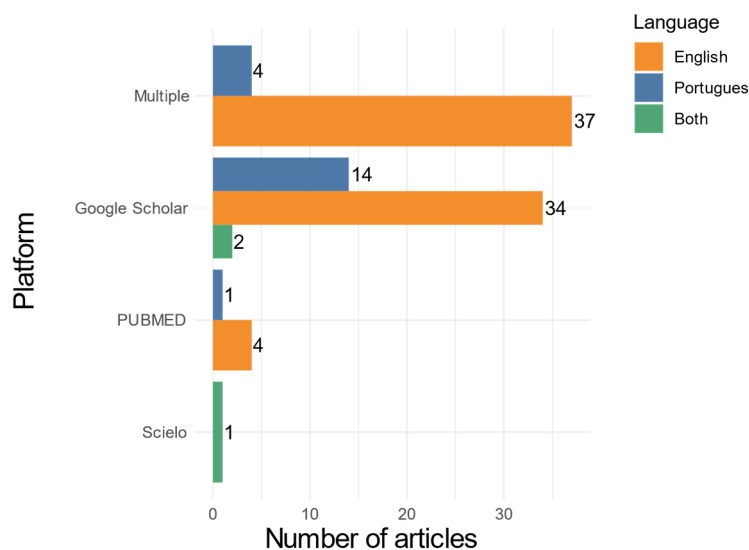


Figure 2. Number of articles published in Portuguese, English, and in both languages across Google Scholar, PubMed, ScienceDirect, LILACS and SciELO platforms, during the period 2012–2022.

The number of articles published on ovitraps by year is presented in Figure 3. Annual publication counts ranged from one to fourteen, with a predominance of English-language publications throughout the study period. Notable peaks occurred in 2015 (14 articles), 2018 (10 articles), and 2020 (13 articles). In contrast, Portuguese-language publications were fewer and more sporadic, with the highest count in 2020 (six articles). Bilingual publications (Portuguese and English in the same article) were rare and identified only in 2017, 2019, and 2022.

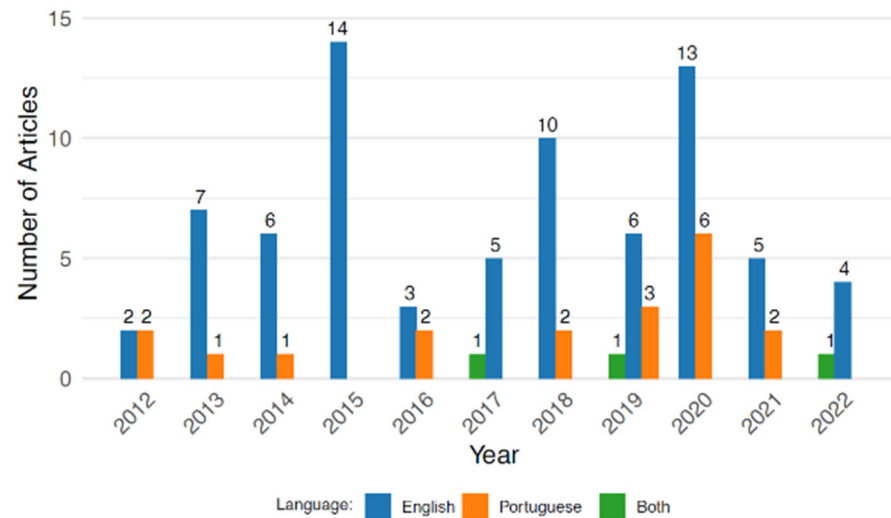


Figure 3. Number of articles related to ovitrap studies published by year and by language (Portuguese, English, and both), from 2012 to 2022.

Figure 4 shows the regional distribution of the scientific articles identified in this review, categorized by language. The southeast and northeast regions accounted for the highest number of publications, with 38 and 37 articles, respectively. In the southeast, 84.2% of the articles were in English, 10.5% in Portuguese, and 5.3% were bilingual. The northeast presented a predominance of Portuguese-language publications (73.0%), followed by English (18.9%) and bilingual (8.1%). In the north (18 articles), 94.4% were published in English and 5.6% in Portuguese, with no bilingual publications. The central-west (15 articles) and south (9 articles) also showed a predominance of English-language publications (86.7% and 77.8%, respectively). Portuguese-language articles in these regions were limited (13.3% in the central-west and 22.2% in the south), with no bilingual publications reported.

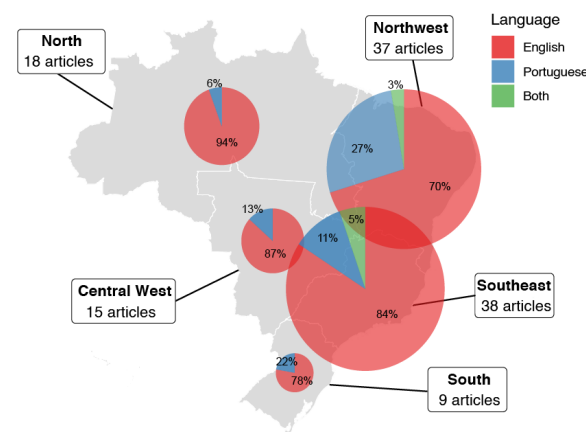


Figure 4. Number of articles related to ovitrap studies published by the Brazilian region and by language (Portuguese, English, and both), from 2012 to 2022. Articles addressing more than one region were counted separately for each region covered.

The articles identified through this review were first organized chronologically (Supplementary Tables S1 and S2), and then categorized by *Aedes* species and language. Table S1 presents a total of 24 articles (24.75%) focused on *Aedes aegypti* (16), *Aedes albopictus* (0), or both species (8), containing keywords in Portuguese or both Portuguese and English. Table S2 includes 78 articles (80.41%) targeting *Ae. aegypti* (59), *Ae. albopictus* (5), or both species (14), with keywords in English or both Portuguese and English. Both tables are available in the Supplementary Materials. The number of articles published by *Aedes* species over time is shown in Figure 5. The temporal distribution of articles focusing on *Ae. aegypti* (72 articles; 74.22%) was higher than those focusing exclusively on *Ae. albopictus* (5 articles; 5.15%) (Figure 5). Additionally, 21 articles (21.6%) investigated both species, reflecting a more integrated entomological approach in certain studies. The number of articles published by *Aedes* species over time is shown in Figure 5. The temporal distribution of articles focusing on *Ae. aegypti* (72 articles; 74.22%) was higher than those focusing exclusively on *Ae. albopictus* (5 articles; 5.15%) (Figure 5). Additionally, 21 articles (21.6%) investigated both species, reflecting a more integrated entomological approach in certain studies. The number of studies on *Ae. aegypti* studies increased steadily from 2012, peaking in 2015 (12 articles) and again in 2020 (13 articles), possibly in response to arboviral outbreaks and intensified surveillance. Although studies including *Ae. albopictus* (alone or with *Ae. aegypti*) have grown modestly in recent years, their overall volume remains limited, underscoring the need for broader entomological monitoring of this potential but epidemiologically important vector.

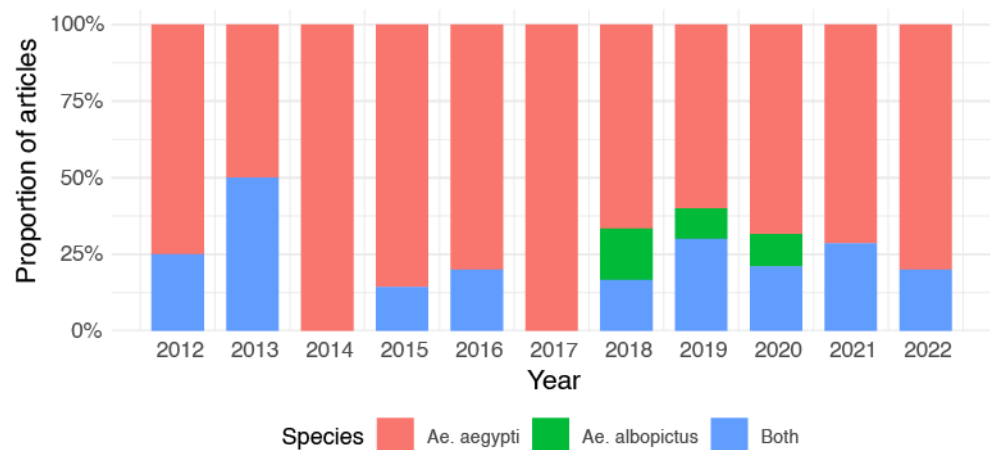


Figure 5. Proportion of articles related to ovitrap studies published by species (*Ae. aegypti*, *Ae. albopictus*, and both) by year, from 2012 to 2022.

In this systematic review, we identified various types of ovitraps used for *Aedes* mosquito surveillance. A total of fifty-nine were traditional ovitraps containing either water or water with hay infusion, five combined ovitraps with larvicides, twenty-seven incorporated plant extracts, one used water with cat food, and five utilized brewer's yeast.

Regarding entomological indicators, 46 studies used qualitative indices such as the ovitrap positivity index (OPI), while 66 studies employed quantitative indices, including the number of *Aedes* eggs, Mean Egg Index, or Egg Density Index (EDI). Figure 6 illustrates the temporal dynamics of the mean OPI and its relationship with the mean EDI across 23 independent studies. Studies with higher EDI values are represented by larger and darker-colored points, reflecting periods of intense oviposition.



Figure 6. Temporal dynamics of the mean ovitrap positivity index (OPI) and its relationship with the mean egg density index (EDI) across 23 studies. The green line represents the OPI trend; the size and color of the circles indicate the average EDI.

4. Discussion

The co-circulation and high number of reported cases of dengue, Zika, and chikungunya, along with the recent reemergence of Oropouche virus in Brazil, have contributed to increased morbidity and mortality, underscoring the need for mosquito surveillance strategies to monitor *Ae. aegypti*, *Ae. albopictus*, and other vectors in urban and periurban areas [50]. In response to the threat of urban arboviruses, the Brazilian Ministry of Health has promoted and monitored the development of new strategies for the entomological surveillance and control of *Ae. aegypti*. In its updated Guidelines for the Prevention and Control of Urban Arboviruses, the Ministry recommends the use of ovitraps as a core strategy for monitoring mosquito circulation [43,51]. Ovitrap are classical tools designed to attract and collect eggs from female mosquitoes seeking oviposition sites [31]. The primary aim of this strategy is to generate timely information on vector infestation to guide targeted control interventions. These guidelines also recommend ovitrap deployment for the initial territorial characterization, serving as a foundation for the introduction and assessment of innovative control technologies, including larvicide dissemination stations, *Wolbachia*-infected mosquitoes, and sterile insect techniques using irradiation [43]. To date, 457 Brazilian municipalities have incorporated ovitraps into routine *Aedes* surveillance, with 200 municipalities receiving targeted training to ensure correct implementation (personal communication with J.B.P. Lima, July 2025).

In this study, we conducted a systematic review of publications reporting Brazilian research that employed ovitraps to monitor *Aedes* populations, specifically *Ae. aegypti* and *Ae. Albopictus*, published from 2012 to 2022, with the aim of synthesizing surveillance data obtained through this oviposition method. Our findings showed that most articles included in this review were published in English rather than Portuguese, with notable variation across years. The highest number of publications occurred in 2020, with six in Portuguese and fourteen in total. This supports earlier observations by Di Bitetti et al. (2016), who reported that non-native English-speaking researchers often prioritize publishing in English-language journals, likely due to the expectation that such publications will achieve greater visibility and citation rates [52]. The data also indicated that bilingual publications (Portuguese and English) were rare, occurring only in 2017, 2019, and 2022, possibly reflecting limited uptake of dual-language dissemination strategies by Brazilian researchers. The observed temporal fluctuations in publication volume, with peaks in

2015, 2018, and 2020, may correspond to changes in research funding priorities or shifts in arboviral epidemiological trends in Brazil.

In our results, we found that most studies were concentrated in Brazil's southeast and northeast regions, where scientific output on ovitrap use was higher than in other regions. In the southeast, 30 articles addressed topics such as *Aedes* vector infestation, trap comparisons, oviposition behavior, and *Wolbachia* monitoring. In the northeast, 31 articles examined areas including automated *Aedes* egg counting, vector control, and the effectiveness of biolarvicide-treated ovitraps. Beyond this geographic clustering, it is important to consider that the historical epidemiology of urban arboviruses shows that the northeast and southeast regions consistently report the highest number of probable dengue, Zika, and chikungunya cases and related fatalities, as documented by the Brazilian Ministry of Health [43,50]. However, potential bias must be considered regarding whether the higher ovitrap-related research output in these regions reflects actual arbovirus incidence or a concentration of research capacity.

Oviposition studies play a critical role in guiding evidence-based surveillance and vector control programs targeting disease vectors [53], particularly for monitoring arbovirus transmission in field-collected eggs of *Ae. aegypti* and *Ae. albopictus* [54]. In this review, we identified studies employing diverse ovitrap designs for mosquito monitoring, including traditional ovitraps (with water or hay infusion), ovitraps combined with larvicides, traps using plant extracts, water with cat food, and brewer's yeast. Notably, studies reported increased efficacy when using hay infusions, reinforcing the importance of olfactory attractants in enhancing surveillance sensitivity [21,55].

Several studies included in this systematic review compared ovitraps with alternative mosquito surveillance methods. For instance, De Melo et al. (2012) assessed multiple *Ae. aegypti* surveillance tools and found that MosquiTRAP data showed a stronger temporal and spatial correlation with dengue fever cases compared to ovitraps and larval surveys, emphasizing the need for fine-scale risk assessment tools [56]. Similarly, Resende et al. (2013) compared MosquiTRAPs, ovitraps, and larval surveys, concluding that while each method had specific strengths and limitations, ovitraps and MosquiTRAPs demonstrated greater sensitivity than traditional larval surveys [57]. Codeço et al. (2015) evaluated larval surveys and four types of traps; ovitraps, MosquiTRAPs, Adultraps, and BG-Sentinels across five mid-sized Brazilian cities with diverse climates. Their results indicated that adult traps provided more sensitive and reliable data, and when used in combination, enhanced surveillance and control efforts synergistically [31]. Silva and Limongi (2018) compared four traps under field conditions and found that ovitraps had the highest positivity rates for detecting *Ae. aegypti*, although temperature and rainfall influenced trap effectiveness [58]. Monteiro et al. (2020) compared ovitraps with the Larval Index Rapid Assay (LIRAA), concluding that ovitraps were useful but insufficient as standalone tools. Instead, combining ovitraps with LIRAA improved overall surveillance effectiveness [59]. Finally, Jesus et al. (2022) found that ovitraps were as accurate as BG-Sentinels for estimating *Wolbachia* frequency during mass mosquito releases, while being significantly more cost-effective [60].

Previous studies, such as that by Braga et al. (2000), which compared larval surveys and ovitraps for monitoring *Ae. aegypti* populations, reported that ovitraps were more cost-effective, operationally viable, and highly effective for surveillance of this vector [29]. Gama et al. (2007) also compared MosquiTRAPs, ovitraps, and larval surveys in the state of Minas Gerais to identify the most effective monitoring tools during the dry season [61]. This study, along with others, including Braga et al. (2000), confirmed that ovitraps are particularly sensitive for detecting *Aedes* mosquitoes [29]. Moreover, Morato et al. (2005) concluded that ovitraps were easier to standardize than traditional larval indices in compar-

ative evaluations [62]. Most of the selected studies focused predominantly on *Ae. aegypti*, highlighting a research gap concerning *Ae. albopictus*. This gap underscores the need for studies addressing both sympatric species, especially given their ecological overlap and mutual competence in transmitting dengue, chikungunya, and Zika viruses across endemic regions [1,3,63].

Despite their widespread use, the Breteau Index (number of containers with larvae per household) and the Building Infestation Index (number of positive properties relative to the total properties surveyed) have been questioned by some authors regarding their effectiveness. According to Rawlins (1998), in areas with low infestation levels, larval surveys alone are insufficient to detect the presence of vectors [64]. Similarly, Focks (2003) argued that larval indices are poor indicators of adult mosquito abundance [34]. Therefore, incorporating ovitraps into integrated vector management strategies are of high relevance. This method enables the calculation of entomological indicators such as the Egg Density Index (EDI) and OPI, which have demonstrated greater sensitivity in detecting early infestations [31,65]. Our findings indicate that high EDI values do not necessarily align with high OPI values, suggesting that these indicators capture distinct aspects of *Aedes* population dynamics. The potential to derive multiple indices from ovitrap data reinforces their utility as an essential tool in *Aedes* surveillance [66–69]. To ensure their effectiveness in Brazil, it is essential to adapt ovitrap implementation to regional contexts by considering both environmental characteristics and local climatic conditions [42,43,70]. Finally, based on the studies reviewed, ovitraps showed the highest sensitivity and strongest correlation with climatic variables, consistently reflecting adult mosquito population trends observed using adult traps [31]. Given the urgent need for sensitive, scalable surveillance tools in public and occupational health programs targeting *Ae. aegypti* and *Ae. albopictus*, ovitraps remain a reliable and cost-effective classical method.

5. Conclusions

The results of this systematic review reinforce the importance of ovitraps as a sensitive, scalable, and cost-effective tool for detecting the presence and estimating the relative abundance of both *Ae. aegypti* and *Ae. albopictus* in Brazil. Although all studies included in the review were conducted within the country, only 21.7% were published in Portuguese. This language imbalance may hinder effective communication with local communities, frontline health workers, and municipal decision-makers. Overall, the findings highlight the critical value of ovitrap-based entomological surveillance, offering actionable insights to guide the planning, implementation, and evaluation of vector control strategies in Brazilian urban and peri-urban settings.

Supplementary Materials: The following supporting information can be downloaded at <https://www.mdpi.com/article/10.3390/tropicalmed10080212/s1>, Table S1: Articles identified in the present review that reported on studies that targeted *Aedes aegypti* or *Aedes albopictus* or both study species (*Ae. aegypti* and *Ae. albopictus*) and had key words in Portuguese; Table S2: Articles identified in the present review that reported on studies that targeted *Aedes aegypti* or *Aedes albopictus* and both study species (*Ae. albopictus* and *Ae. aegypti*) and had key words in English. References [71–154] are cited in the supplementary materials.

Author Contributions: Conceptualization, R.F.S.C.d.N. and N.A.H.; methodology, R.F.S.C.d.N. and N.A.H.; formal analysis, R.F.S.C.d.N., A.d.S.X., T.A.S., D.C.P.C., I.C.d.R., E.O.D. and N.A.H.; investigation, R.F.S.C.d.N., T.A.S., I.C.d.R. and N.A.H.; data curation, R.F.S.C.d.N., A.d.S.X., T.A.S., D.C.P.C., I.C.d.R., E.O.D. and N.A.H.; writing—original draft preparation, R.F.S.C.d.N., A.d.S.X., T.A.S., D.C.P.C., I.C.d.R., E.O.D., P.C.d.S., V.H.F.-d.-L., T.N.L.-C. and N.A.H.; writing—review and editing, R.F.S.C.d.N., A.d.S.X., T.A.S., D.C.P.C., I.C.d.R., E.O.D., P.C.d.S., V.H.F.-d.-L., T.N.L.-C. and

N.A.H., visualization, T.A.S. and N.A.H.; supervision, N.A.H.; project administration, N.A.H.; funding acquisition, N.A.H. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by Fundação de Amparo à Pesquisa do Estado do Rio de Janeiro (FAPERJ)—grant number E-26/201.207/2022.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data supporting this review are available within the article and its Supplementary Materials.

Acknowledgments: We thank José Bento Pereira Lima for providing information on the Brazilian municipalities that have incorporated ovitraps into routine *Aedes* surveillance.

Conflicts of Interest: The authors declare no conflicts of interest.

References

1. Lima-Camara, T.N. Arboviroses emergentes e novos desafios para a saúde pública no Brasil. *Rev. Saúde Pública* **2016**, *50*, 36.
2. Possas, C.; Lourenço-de-Oliveira, R.; Tauil, P.L.; Pinheiro, F.P.; Pissinatti, A.; Cunha, R.V.; Freire, M.; Martins, R.M.; Homma, A. Yellow fever outbreak in Brazil: The puzzle of rapid viral spread and challenges for immunisation. *Mem. Inst. Oswaldo Cruz* **2018**, *10*, e180278. [[CrossRef](#)]
3. Resck, M.E.B.; Câmara, D.C.P.; Dos Santos, F.B.; Dos Santos, J.P.C.; Alto, B.W.; Honório, N.A. Spatial-temporal distribution of chikungunya virus in Brazil: A review on the circulating viral genotypes and *Aedes (Stegomyia) albopictus* as a potential vector. *Front. Public Health* **2024**, *11*, 12. [[CrossRef](#)]
4. Consoli, R.A.G.B.; Lourenço-de-Oliveira, R. *Principais Mosquitos de Importância Sanitária no Brasil*, 1st ed.; Editora Fiocruz: Rio de Janeiro, Brazil, 1994; 228p.
5. Clements, A.N. *The Biology of Mosquitoes*, 3rd ed.; Neville, A., Ed.; Clements Hardcover: London, UK, 2012; 584p.
6. Nadim, S.S.; Ghosh, I.; Martcheva, M.; Chattopadhyay, J. Impact of venereal transmission on the dynamics of vertically transmitted viral diseases among mosquitoes. *Math. Biosci.* **2020**, *325*, 108366.
7. Yang, H.M. The transovarial transmission in the dynamics of dengue infection: Epidemiological implications and thresholds. *Math. Biosci.* **2017**, *286*, 1–15. [[CrossRef](#)]
8. Lequime, S.; Paul, R.E.; Lambrechts, L. Determinants of arbovirus vertical transmission in mosquitoes. *PLoS Pathog.* **2016**, *5*, e1005548. [[CrossRef](#)] [[PubMed](#)]
9. Janjoter, S.; Kataria, D.; Yadav, M.; Dahiya, N.; Sehrawat, N. Transovarial transmission of mosquito-borne viruses: A systematic review. *Front. Cell. Infect. Microbiol.* **2024**, *13*, 1304938. [[CrossRef](#)] [[PubMed](#)]
10. Beaty, J.B.; Williams, C.M. *The Biology of Disease Vectors*, 1st ed.; University Press of Colorado: Denver, CO, USA, 1996; 632p.
11. Ferreira-de-Lima, V.H.; Lima-Camara, T.N. Natural vertical transmission of dengue virus in *Aedes aegypti* and *Aedes albopictus*: A systematic review. *Parasites Vectors* **2018**, *1*, 77. [[CrossRef](#)] [[PubMed](#)]
12. Christophers, S.R. *Aedes aegypti (L.), the Yellow Fever Mosquito—Its Life History, Bionomics, and Structure*; Cambridge University Press: London, UK, 1960; 739p.
13. Souza, L.R.S. Viabilidade Econômica da TIE (Técnica do Inseto Estéril) no Controle Epidemiológico do Mosquito *Aedes aegypti*. Ph.D. Thesis, Universidade de São Paulo, São Paulo, Brazil, 2015.
14. Arduino, M.B.; de-Ávila, G.O. Aspectos físico-químicos da água de criadouros de *Aedes aegypti* em ambiente urbano e as implicações para o controle da dengue. *Rev. Patolog. Trop.* **2015**, *44*, 89–100. [[CrossRef](#)]
15. Lounibos, L.P. Invasions by insect vectors of human disease. *Annu. Rev. Entomol.* **2002**, *47*, 233–266. [[CrossRef](#)]
16. Honório, N.A.; Silva, W.C.; Leite, P.J.; Gonçalves, J.M.; Lounibos, L.P.; Lourenço-de-Oliveira, R. Dispersal of *Aedes aegypti* and *Aedes albopictus* (Diptera: Culicidae) in an urban endemic dengue area in the State of Rio de Janeiro, Brazil. *Mem. Inst. Oswaldo Cruz* **2003**, *2*, 191–198. [[CrossRef](#)]
17. Gomes, A.C.; Souza, J.M.P.; Bergamaschia, D.P.; dos-Santos, J.L.F.; Andrade, V.R.; Leite, O.F.; Rangel, O.; Souza, S.S.L.; Guimarães, N.S.N.; Lima, V.L.C. Atividade antropofílica de *Aedes aegypti* e *Aedes albopictus* em área sob controle e vigilância. *Rev. Saúde Pública* **2005**, *39*, 206–210. [[CrossRef](#)] [[PubMed](#)]
18. Câmara, D.C.P.; Codeço, C.T.; Ayllón, T.; Nobre, A.A.; Azevedo, R.C.; Ferreira, D.F.; da Silva Pinel, C.; Rocha, G.P.; Honório, N.A. Entomological surveillance of *Aedes* mosquitoes: Comparison of different collection methods in an endemic area in Rio de Janeiro, Brazil. *Trop. Med. Infect. Dis.* **2022**, *7*, 114. [[CrossRef](#)] [[PubMed](#)]

19. Soares-Pinheiro, V.C.; Dasso-Pinheiro, W.; Trindade-Bezerra, J.M.; Tadei, W.P. Eggs viability of *Aedes aegypti* Linnaeus (Diptera, Culicidae) under different environmental and storage conditions in Manaus, Amazonas, Brazil. *Braz. J. Biol.* **2017**, *2*, 396–401. [[CrossRef](#)] [[PubMed](#)]
20. Mutebi, J.P.; Wilke, A.B.B.; Ostrum, E.; Vasquez, C.; Cardenas, G.; Carvajal, A.; Moreno, M.; Petrie, W.D.; Rodriguez, A.; Presas, H.; et al. Diel activity patterns of two distinct populations of *Aedes aegypti* in Miami, FL and Brownsville, TX. *Sci. Rep.* **2022**, *12*, 5315. [[CrossRef](#)]
21. Reiter, P.; Amador, M.A.; Colon, N. Enhancement of the CDC ovitrap with hay infusions for daily monitoring of *Aedes aegypti* populations. *J. Am. Mos. Control Assoc.* **1991**, *7*, 52–55.
22. Forattini, O.P. *Culicidologia Médica*, 2nd ed.; EdUSP: São Paulo, Brazil, 2002; 860p.
23. Carvalho, R.G.; Lourenço-de-Oliveira, R.; Braga, I.A. Updating the geographical distribution and frequency of *Aedes albopictus* in Brazil with remarks regarding its range in the Americas. *Mem. Inst. Oswaldo Cruz* **2014**, *109*, 787–796. [[CrossRef](#)]
24. Pancetti, F.G.M.; Honório, N.A.; Urbinatti, P.R.; Lima-Camara, T.N. Twenty-eight years of *Aedes albopictus* in Brazil: A rationale to maintain active entomological and epidemiological surveillance. Short Communications. *Rev. Soc. Bras. Med. Trop.* **2015**, *48*, 87–89. [[CrossRef](#)]
25. Castro, M.G.; Nogueira, R.M.R.; Schatzmayr, H.G.; Miagostovich, M.P.; Lourenço-de Oliveira, R. Dengue virus detection by using reverse transcription polymerase chain reaction in saliva and progeny of experimentally infected *Aedes albopictus* from Brazil. *Mem. Inst. Oswaldo Cruz* **2004**, *99*, 809–814. [[CrossRef](#)]
26. Vega-Rúa, A.; Zouache, K.; Girod, R.; Failloux, A.B.; Lourenço-de-Oliveira, R. High level of vector competence of *Aedes aegypti* and *Aedes albopictus* from ten American countries as a crucial factor in the spread of Chikungunya Virus. *J. Virol.* **2014**, *88*, 6294–6306. [[CrossRef](#)]
27. Honório, N.A.; Wiggins, K.; Câmara, D.C.P.; Eastmond, B.; Alto, B.W. Chikungunya virus vector competency of Brazilian and Florida mosquito vectors. *PLoS Negl. Trop. Dis.* **2018**, *12*, e0006521. [[CrossRef](#)] [[PubMed](#)]
28. Gomes, A.C. Vigilância entomológica. *Inf. Epidemiol. Sus* **2002**, *11*, 79–90. [[CrossRef](#)]
29. Braga, I.A.; Gomes, A.C.; Nelson, M.; Mello, R.C.; Bergamaschi, D.P.; Souza, J.M.P. Comparação entre pesquisa larvária e armadilha de oviposição, para detecção de *Aedes aegypti*. *Rev. Soc. Bras. Med.* **2000**, *33*, 347–353. [[CrossRef](#)] [[PubMed](#)]
30. Nunes, L.S.; Trindade, R.B.R.; Souto, R.N.P. Avaliação da atratividade de ovitrampas a *Aedes (Stegomyia) aegypti* Linnaeus (Diptera: Culicidae) no bairro Hospitalidade, Santana, Amapá. *Biota Amazon.* **2011**, *1*, 26–31. [[CrossRef](#)]
31. Codeço, C.T.; Lima, A.W.; Araújo, S.C.; Lima, J.B.; Maciel-de-Freitas, R.; Honório, N.A.; Galardo, A.K.; Braga, I.A.; Coelho, G.E.; Valle, D. Surveillance of *Aedes aegypti*: Comparison of house index with four alternative traps. *PLoS Negl. Trop. Dis.* **2015**, *9*, e0003475. [[CrossRef](#)]
32. Fay, R.W.; Perry, A.S. Laboratory studies of ovipositional preferences of *Aedes aegypti*. *Mosq. News* **1965**, *25*, 276–281.
33. Fay, R.W.; Eliason, D.A. A preferred oviposition site as a surveillance method for *Aedes aegypti*. *Mosq. News* **1966**, *26*, 531–535.
34. Focks, D.A. *A Review of Entomological Sampling Methods and Indicators for Dengue Vectors*; World Health Organization: Gainesville, FL, USA, 2003; 40p.
35. Zequi, J.A.C.; Oliveira, A.A.; Santos, F.P.; Lopes, J. Monitoramento e controle de *Aedes aegypti* (Linnaeus, 1762) e *Aedes albopictus* (Skuse, 1984) com uso de ovitrampas. *Semin. Cienc. Biol. Saude* **2018**, *39*, 93–102. [[CrossRef](#)]
36. Câmara, D.C.P.; Codeço, C.T.; Juliano, S.A.; Lounibos, L.P.; Riback, T.I.S.; Pereira, G.R.; Honório, N.A. Seasonal differences in density but similar competitive impact of *Aedes albopictus* (Skuse) on *Aedes aegypti* (L.) in Rio de Janeiro, Brazil. *PLoS ONE* **2016**, *11*, e0157120. [[CrossRef](#)]
37. Acero-Sandoval, M.A.; Palacio-Cortés, A.M.; Navarro-Silva, M.A. Surveillance of *Aedes aegypti* and *Aedes albopictus* (Diptera: Culicidae) as a method for prevention of Arbovirus transmission in urban and seaport areas of the Southern Coast of Brazil. *J. Med. Entomol.* **2023**, *1*, 173–184. [[CrossRef](#)]
38. Braga, I.A.; Valle, D. *Aedes aegypti*: Histórico do controle no Brasil. *Epidemiol. Serv. Saúde* **2007**, *16*, 113–118.
39. Siqueira, A.S.P.; Praça, H.L.F.; Santos, J.P.C.; Albuquerque, H.G.; Pereira, L.H.V.; César, T.S.; Gusmão, E.V.V.; Pereira, A.A.T.; Pimenta Júnior, F.G.; Nobre, A.A.; et al. ARBOALVO: Método de estratificação da receptividade territorial às arboviroses urbanas. *Rev. Saude Publica* **2022**, *56*, 39. [[CrossRef](#)] [[PubMed](#)]
40. Alves, M.B.; Erbisti, R.S.; Nobre, A.A.; Simões, T.C.; Tavares, A.M.; Melo, M.C.; Pedreira, R.M.; de Araújo, J.P.M.; Carvalho, M.S.; Honório, N.A. ARBOALVO: A Bayesian spatiotemporal learning and predictive model for dengue cases in the endemic Northeast city of Natal, Rio Grande do Norte, Brazil. *PLoS Negl. Trop. Dis.* **2025**, *19*, e0012984. [[CrossRef](#)] [[PubMed](#)]
41. Technical Note, No. 3/2014/IOC-FIOCRUZ/DIRETORIA. Available online: https://fiocruz.br/ioc/media/nota_tecnica_ioc_3.pdf (accessed on 8 July 2025).
42. Technical Note, No. 33/2022/CGARB/DEIDT/SVS/MS. Available online: https://www.gov.br/saude/pt-br/centrais-de-conteudo/publicacoes/estudos-e-notas-informativas/2023/nota-informativa-no-37-2023-cgarb-dedt-svsa-ms/@@download/file/Nota%2037_2023%20novas%20tecnologias.pdf (accessed on 8 July 2025).

43. BRASIL; Ministry of Health; Brasília. Diretrizes do MS (Diretrizes Nacionais para Prevenção e Controle das Arboviroses Urbanas: Vigilância Entomológica e Controle Vetorial [recurso eletrônico]/Ministério da Saúde, Secretaria de Vigilância em Saúde, Departamento de Doenças Transmissíveis. Coordenação-Geral de Vigilância de Arboviroses 2025, 190 p. Available online: <https://www.gov.br/saude/pt-br/centrais-de-conteudo/publicacoes/svsa/dengue/diretrizes-nacionais-para-prevencao-e-controle-das-arboviroses-urbanas-vigilancia-entomologica-e-controle-vetorial.pdf/view> (accessed on 8 July 2025).
44. Schardt, C.; Adams, M.B.; Owens, T.; Keitz, S.; Fontelo, P. Utilization of the PICO framework to improve searching PubMed for clinical questions. *BMC Med. Inform. Decis. Mak.* **2007**, *7*, 16. [CrossRef]
45. Site DeCS. Available online: <http://decs.bvsalud.org/> (accessed on 8 July 2025).
46. Site R Core Team. *R: A Language and Environment for Statistical Computing*; R Foundation for Statistical Computing: Vienna, Austria, 2025. Available online: <https://www.R-project.org/> (accessed on 16 July 2025).
47. Cleveland, W.S.; Grosse, E.; Shyu, W.M. *Local Regression Models. Chapter 8 of Statistical Models in S*; Chambers, J.M., Hastie, T.J., Eds.; Wadsworth & Brooks/Cole: Pacific Grove, CA, USA, 1992; 68p.
48. Wickham, H. *ggplot2: Elegant Graphics for Data Analysis*; Springer: New York, NY, USA, 2016. [CrossRef]
49. Pereira, R.H.M.; Gonçalves, C.N. geobr: Loads Shapefiles of Official Spatial Data Sets of Brazil. GitHub Repository. 2019. Available online: <https://github.com/ipeaGIT/geobr> (accessed on 8 July 2025).
50. Ministério da Saúde. Painel de Monitoramento de Arboviroses. 2025. Available online: <https://www.gov.br/saude/pt-br/assuntos/saude-de-a-a-z/a/aedes-aegypti/monitoramento-das-arboviroses> (accessed on 16 July 2025).
51. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde. Relatório da Reunião internacional para implementação de alternativas para o controle do *Aedes aegypti* no Brasil. *Bol. Epidemiol.* **2016**, *47*, 1–9.
52. Di Bitetti, M.S.; Ferraras, J.A. Publish (in English) or perish: The effect on citation rate of using languages other than English in scientific publications. *Ambio* **2017**, *46*, 121–127. [CrossRef]
53. Day, J.F. Mosquito oviposition behavior and vector control. *Insects* **2016**, *4*, 65. [CrossRef]
54. da Costa, C.F.; da Silva, A.V.; do Nascimento, V.A.; de Souza, V.C.; Monteiro, D.C.D.S.; Terrazas, W.C.M.; Dos Passos, R.A.; Nascimento, S.; Lima, J.B.P.; Naveca, F.G. Evidence of vertical transmission of Zika virus in field-collected eggs of *Aedes aegypti* in the Brazilian Amazon. *PLoS Negl. Trop. Dis.* **2018**, *12*, e0006594. [CrossRef]
55. Chadee, D.D.; Lakhani, A.; Ramdath, W.R.; Persad, R.C. Oviposition response of *Aedes aegypti* mosquitoes to different concentrations of hay infusion in Trinidad, West Indies. *J. Am. Mosq. Control Assoc.* **1993**, *3*, 346–349.
56. De Melo, D.P.; Scherrer, L.R.; Eiras, Á.E. Dengue fever occurrence and vector detection by larval survey, ovitrap and MosquiTRAP: A space-time clusters analysis. *PLoS ONE* **2012**, *7*, e42125. [CrossRef]
57. Resende, M.C.; Silva, I.V.; Ellis, B.R.; Eira, A.E. A comparison of larval, ovitrap and MosquiTRAP surveillance for *Aedes (Stegomyia) aegypti*. *Mem. Inst. Oswaldo Cruz* **2013**, *8*, 1024–1030. [CrossRef]
58. Silva, C.E.; Limongi, J.E. Avaliação comparativa da eficiência de armadilhas para a captura e coleta de *Aedes aegypti* em condições de campo. *Cad. Saúde Coletiva* **2018**, *26*, 241–248. [CrossRef]
59. Monteiro, R.M.M.; Oliveira, C.A.; Sousa, M.H.; Santos, A.O.; Soares, T.M.S.; Santos, E.P.; Amorim, L.L.B.; Amorim, L.B. Estudo comparativo entre ovitrapa e o método LIRAA para avaliação da presença de *Aedes aegypti* (Diptera: Culicidae) em Pedro II, Piauí, Brasil. *Bras. J. Dev.* **2020**, *6*, 38890–38912. [CrossRef]
60. Jesus, C.P.; Dias, F.B.S.; Villela, D.M.A.; Freitas, R.F.M. Ovitrap provide a reliable estimate of *Wolbachia* frequency during WMelBr Strain deployment in a geographically isolated *Aedes aegypti* population. *Insects* **2020**, *11*, 92. [CrossRef] [PubMed]
61. Gama, R.A.; Silva, E.M.; Silva, I.M.; Resende, M.C.; Eiras, A.E. Evaluation of the sticky MosquiTRAP for detecting *Aedes (Stegomyia) aegypti* (L.) (Diptera: Culicidae) during the dry season in Belo Horizonte, Minas Gerais, Brazil. *Neotrop. Entomol.* **2007**, *36*, 294–302. [CrossRef]
62. Morato, V.C.G.; Teixeira, M.G.; Gomes, A.C.; Bergamaschi, D.P.; Barreto, M.L. Infestation of *Aedes aegypti* estimated by oviposition traps in Brazil. *Rev. Saúde Pública* **2005**, *4*, 553–558. [CrossRef]
63. Honório, N.A.; Castro, M.G.; Barros, F.S.; Magalhães Mde, A.; Sabroza, P.C. The spatial distribution of *Aedes aegypti* and *Aedes albopictus* in a transition zone, Rio de Janeiro, Brazil. *Cad. Saude Publica* **2009**, *25*, 1203–1214. [CrossRef]
64. Rawlins, S.C.; Martinez, R.; Wiltshire, S.; Legall, G. A comparison of surveillance systems for the dengue vector *Aedes aegypti* in Port of Spain, Trinidad. *J. Am. Mosq. Control Assoc.* **1998**, *2*, 131–136.
65. Romero-Vivas, C.M.; Falconar, A.K. Investigation of relationships between *Aedes aegypti* egg, larvae, pupae, and adult density indices where their main breeding sites were located indoors. *J. Am. Mosq. Control Assoc.* **2005**, *1*, 15–21. [CrossRef]
66. Barbosa, I.R.; Tavares, A.M.; Torres, U.P.S.; Nascimento, C.A.; Moura, M.C.B.M.; Vieira, V.B.; Araújo, J.M.G.; Gama, R.A. Identification of surveillance and control priority for dengue and other arboviruses transmitted by areas *Aedes aegypti* in Natal-RN, Brazil: Experience report. *Epidemiol. Serv. Saude* **2017**, *26*, 629–638. [CrossRef]
67. Heinisch, M.R.S.; Diaz-Quijano, F.A.; Chiaravalloti-Neto, F.; Pancetti, F.G.M.; Coelho, R.R.; Andrade, P.S.; Urbinatti, P.R.; Almeida, R.M.M.S.; Lima-Camara, T.N. Seasonal and spatial distribution of *Aedes aegypti* and *Aedes albopictus* in a municipal urban park in São Paulo, SP, Brazil. *Acta Trop.* **2019**, *189*, 104–113. [CrossRef] [PubMed]

68. Mafra, N.S.C.; Everton, G.O.; Ferreira, A.M.; Sales, E.H.; Júnior, P.S.S.; Filho, V.E.M. Potenciais biológicos do óleo essencial de *Ocimum basilicum* Linn coletada na região Pré-Amazônica do Maranhão. *Res. Soc. Dev.* **2020**, *9*, e203985596. [[CrossRef](#)]
69. Martins, T.G.T.; Everton, G.O.; Rosa, P.V.S.; Arruda, M.O.; Souto, L.A.S.; Fonseca, D. Atividade larvicida do óleo essencial de *Pimenta dioica* Lindl. frente as larvas do mosquito *Aedes aegypti*. *Res. Soc. Dev.* **2020**, *9*, e151985518. [[CrossRef](#)]
70. De Oliveira, J.C.; Gonzaga, E.A.R.; Souza, G.S.G.; Filho, J.F. As contribuições de ovitrampas no monitoramento de vetores: Possibilidades e desafios. *Rev. Multi. Saúde* **2023**, *4*, 42–58.
71. Oliveira, J.C.; Lima, S.C. Mobilização comunitária e vigilância em saúde no controle dos *Aedes* e prevenção do dengue no distrito de Martinésia, Uberlândia (MG). *Bolet. Campineiro Geogr.* **2012**, *2*, 121–136. [[CrossRef](#)]
72. Silva, M.G.N.M.; Rodrigues, M.A.B.; Araujo, R.E. Sistema de aquisição e processamento de imagens de ovitrampas para o combate à dengue. *Rev. Bras. Eng. Biomed.* **2012**, *28*, 364–374. [[CrossRef](#)]
73. Oliveira, T.E.S.; Muisis, C.R. Análise da flutuação das populações de *Aedes aegypti* e *Aedes albopictus* em uma escola de Cuiabá-MT. *Rev. Eletrônica Gest. Educ. Tecnol. Ambient.* **2014**, *18*, 178–186. [[CrossRef](#)]
74. Serpa, L.L.N.; Barbosa, G.L.; Arduino, M.B.; Andrade, V.R.; Voltolini, J.C.; Lima, V.L.C.; Marques, G.R.A.M. Segregação espacial de *Aedes aegypti* e *Aedes albopictus*, estado de São Paulo, Brasil. *Bolet. Epidemiol. Paul.* **2013**, *18*, 39–56. [[CrossRef](#)]
75. Bellinato, D.F.; Viana-Medeiros, P.F.; Araújo, S.C.; Martins, A.J.; Lima, J.B.P.; Valle, D. Resistance status to the insecticides temephos, deltamethrin, and diflubenzuron in Brazilian *Aedes aegypti* populations. *Biomed. Res. Int.* **2016**, *2016*, 8603263. [[CrossRef](#)]
76. Costa, I.M.P.; Calado, D.C. Incidência dos casos de dengue (2007) e distribuição sazonal de culicídeos (2012–2013) em Barreiras, Bahia. *Epidemiol. Serv. Saude* **2016**, *25*, 735–744. [[CrossRef](#)]
77. Depoli, P.A.C.; Zequi, J.A.C.; Nascimento, K.L.C.; Lopes, J. Eficácia de ovitrampas com diferentes atrativos na vigilância e controle de *Aedes*. *EntomoBrasilis* **2016**, *9*, 51–55. [[CrossRef](#)]
78. Alves Virgulino, A.C.L.; Silva Costa, T.I.; Azevedo Feitosa, F.R.; Lima Rocha, E.P.; Azevedo, R. Attractive activity of plant extracts for the oviposition of *Aedes aegypti* L. (Diptera: Culicidae). *Idesia* **2018**, *36*, 225–231.
79. Barbosa, G.L.; Lage, M.O.; Andrade, V.R.; Gomes, A.H.A.; Quintanilha, J.A.; Chiaravalloti-Neto, F. Influence of strategic points in the dispersion of *Aedes aegypti* in infested areas. *Rev. Saude Publica* **2019**, *53*, 29. [[CrossRef](#)] [[PubMed](#)]
80. Custódio, J.M.O.; Nogueira, L.M.S.; Souza, D.A.; Fernandes, M.F.; Oshiro, E.T.; Oliveira, E.F.; Piranda, E.M.; Oliveira, A.G. Abiotic factors and population dynamic of *Aedes aegypti* and *Aedes albopictus* in an endemic area of dengue, Brazil. *Rev. Inst. Med. Trop.* **2019**, *61*, e18. [[CrossRef](#)] [[PubMed](#)]
81. Fonseca, E.O.; Macoris, M.L.G.; Santos, R.F.; Morato, D.G.; Isabel, M.D.S.S.; Cerqueira, N.A.; Monte-Alegre, A.F. Estudo experimental sobre a ação de larvicidas em pop de *Aedes aegypti* do município de Itabuna, Bahia. *Epidemiol. Serv. Saude* **2019**, *28*, e2017316. [[PubMed](#)]
82. Gonçalves e Sá, Á.K.; Matias Gomes, E.J.; Beltrão Rameh Barbosa, I.M.; Medeiros de Araújo Frutuoso, M.N.; Costa Castro Lyra, M.R.; Mansur Custódio Nogueira, R.J.; Ferreira Brandão Rodrigues, S.S. Monitoramento de *Aedes aegypti* por ovitrampas e pelo método LIRAA em Salgueiro, Pernambuco, Brasil. *Hygeia—Rev. Bras. Geogr. Méd. Saúde* **2019**, *15*, 134–148. [[CrossRef](#)]
83. Ferreira, A.M.; Filho, V.E.M.; Mafra, N.S.C.; Sales, E.H.; Júnior, P.S.S.; Everton, G.O. Constituintes químicos, toxicidade, potencial antioxidante e atividade larvicida frente a larvas de *Aedes aegypti* do óleo essencial de *Aniba rosaedora* Ducke. *Res. Soc. Dev.* **2020**, *9*, e520985663. [[CrossRef](#)]
84. Moraes, L.D.; Cerqueira-Silva, T.; Nobrega, V.; Akrami, K.; Santos, L.A.; Orge, C.; Casais, P.; Cambui, L.; Rampazzo, R.D.; Trinta, K.S.; et al. A clinical scoring system to predict long-term arthralgia in Chikungunya disease: A cohort study. *PLOS Neglected Trop. Dis.* **2020**, *14*, e0008467. [[CrossRef](#)]
85. Oliveira, A.A.; Gil-Santana, H.R.; Valka Alves, R.J.; Alencar, J. *Aedes aegypti* invades Trindade Island, 1,140 km from the Brazilian coast, in the South Atlantic. *J. Am. Mosq. Control Assoc.* **2020**, *36*, 112–114. [[CrossRef](#)]
86. Andrade, J.N.; Neto, E.M.C.; Brandão, H.N.; Lucchese, A.M.; Neto, E.B.N.; Peixoto, T.M. Avaliação de extratos de *Phyllanthus acuminatus* Vahl (Phyllanthaceae) na mortalidade de larvas de *Aedes aegypti* Linnaeus, 1762 (Culicidae). *Brazil. J. Dev.* **2021**, *7*, 5278–5295. [[CrossRef](#)]
87. Júnior, P.P.G.; Bezerra, A.C.; Ferraz, E.X.L. Análise espacial de casos de dengue em município no semiárido pernambucano. *Res. Soc. Dev.* **2021**, *10*, e8510615473. [[CrossRef](#)]
88. Campos, M.; Spenassatto, C.; Macoris, M.L.G.; Paduan, K.S.; Pinto, J.; Ribolla, P.E.M. Seasonal population dynamics and the genetic structure of the mosquito vector *Aedes aegypti* in São Paulo, Brazil. *Ecol. Evol.* **2012**, *2*, 2794–2802. [[CrossRef](#)]
89. Gambarra, W.P.T.; Martins, W.F.S.; Lucena Filho, M.L.; Albuquerque, I.M.C.; Apolinário, O.K.S.; Beserra, E.B. Spatial distribution and esterase activity in populations of *Aedes (Stegomyia) aegypti* (Linnaeus) resistant to temephos. *Rev. Soc. Bras. Med. Trop.* **2013**, *46*, 178–184. [[CrossRef](#)]
90. Padilla-Torres, S.D.; Ferraz, G.; Luz, S.L.B.; Zamora-Perea, E.; Abad-Franch, F. Modeling dengue vector dynamics under imperfect detection: Three years of site-occupancy by *Aedes aegypti* and *Aedes albopictus* in urban Amazonia. *PLoS ONE* **2013**, *8*, e58420. [[CrossRef](#)] [[PubMed](#)]

91. Peres, R.C.; Rego, R.; Maciel-de-Freitas, R. The use of the Premise Condition Index (PCI) to provide guidelines for *Aedes aegypti* surveys. *J. Vector Ecol.* **2013**, *38*, 190–192. [[CrossRef](#)] [[PubMed](#)]
92. Piovezan, R.; Rosa, S.L.; Rocha, M.L.; Azevedo, T.S.; Von Zuben, C.J. Entomological surveillance, spatial distribution, and diversity of Culicidae (Diptera) immatures in a rural area of the Atlantic Forest biome, State of São Paulo, Brazil. *J. Vector Ecol.* **2013**, *38*, 317–325. [[CrossRef](#)] [[PubMed](#)]
93. Regis, L.N.; Acioli, R.V.; Silveira, J.C., Jr.; Melo-Santos, M.A.V.; Souza, W.V.; Ribeiro, C.M.; da Silva, J.C.; Monteiro, A.M.; Oliveira, C.M.; Barbosa, R.M.; et al. Sustained reduction of the dengue vector population resulting from an integrated control strategy applied in two Brazilian cities. *PLoS ONE* **2013**, *8*, e67682. [[CrossRef](#)]
94. Lana, R.M.; Carneiro, T.G.S.; Honório, N.A.; Codeco, C.T. Seasonal and nonseasonal dynamics of *Aedes aegypti* in Rio de Janeiro, Brazil: Fitting mathematical models to trap data. *Acta Trop.* **2014**, *129*, 25–32. [[CrossRef](#)]
95. Leal-Santos, F.A.; Santana, M.B.A.; Figueiredo, D.A.; Oliveira, M.M.; Acel, A.M.; Ribeiro, A.L.; Rodrigues, J.S.; Carvalho-Leandro, D.; Miyazaki, R.D.; Leite-Jr, D.P. Effective surveillance of vector dynamics of *Aedes aegypti* in a hospital setting in Cuiabá, Mato Grosso, Brazil. *J. Infect. Dev. Ctries* **2014**, *8*, 1356–1360. [[CrossRef](#)]
96. Linss, J.G.B.; Brito, L.P.; Garcia, G.A.; Araki, A.S.; Bruno, R.V.; Lima, J.B.P.; Valle, D.; Martins, A.J. Distribution and dissemination of the Val1016Ile and Phe1534Cys Kdr mutations in *Aedes aegypti* Brazilian natural populations. *Parasites Vectors* **2014**, *7*, 25. [[CrossRef](#)]
97. Monteiro, F.J.C.; Carvalho, J.C.T.; Souto, R.N.P. Distribuição da oviposição e dinâmica temporal do *Aedes aegypti* (Linnaeus) por meio de ovitrampas. *EntomoBrasilis* **2014**, *7*, 188–192. [[CrossRef](#)]
98. Pessanha, J.E.M.; Brandão, S.T.; Almeida, M.C.M.; Cunha, M.C.M.; Sonoda, I.V.; Bessa, A.M.; Nascimento, J.C. Ovitrap surveillance as dengue epidemic predictor in Belo Horizonte City, Brazil. *J. Health Biol. Sci.* **2014**, *2*, 51–56. [[CrossRef](#)]
99. Regis, L.N.; Acioli, R.V.; Silveira, J.C., Jr.; Melo-Santos, M.A.V.; da Cunha, M.C.; Souza, F.; Batista, C.A.; Barbosa, R.M.; de Oliveira, C.M.; Ayres, C.F.; et al. Characterization of the spatial and temporal dynamics of the dengue vector population established in urban areas of Fernando de Noronha, a Brazilian oceanic island. *Acta Trop.* **2014**, *137*, 80–87. [[CrossRef](#)]
100. Santos, N.D.L.; Napoleão, T.H.; Coelho, L.C.B.B.; Paiva, P.M.G. Evaluation of Moringa oleifera seed lectin in traps for the capture of *Aedes aegypti* eggs and adults under semi-field conditions. *Parasitol. Res.* **2014**, *113*, 1837–1842. [[CrossRef](#)]
101. Abreu, F.V.S.; Morais, M.M.; Ribeiro, S.P.; Eiras, Á.E. Influence of breeding site availability on the oviposition behaviour of *Aedes aegypti*. *Mem. Inst. Oswaldo Cruz* **2015**, *110*, 669–676. [[CrossRef](#)]
102. Brasil, L.M.; Gomes, M.M.F.; Miosso, C.J.; Silva, M.M.; Amvame-Nze, G.D. Web platform using digital image processing and GIS tools: A Brazilian case study on dengue. *Biomed. Eng. Online* **2015**, *14*, 69. [[CrossRef](#)] [[PubMed](#)]
103. Carvalho, D.O.; McKemey, A.R.; Garziera, L.; Lacroix, R.; Donnelly, C.A.; Alphey, L.; Malavasi, A.; Capurro, M.L. Suppression of a field population of *Aedes aegypti* in Brazil by sustained release of transgenic male mosquitoes. *PLoS Negl. Trop. Dis.* **2015**, *9*, e0003864. [[CrossRef](#)] [[PubMed](#)]
104. Cecílio, S.G.; Silva Júnior, W.F.; Tótola, A.H.; Magalhães, C.L.B.; Ferreira, J.M.S.; Magalhães, J.C. Dengue virus detection in *Aedes aegypti* larvae from Southeastern Brazil. *J. Vector Ecol.* **2015**, *40*, 71–74. [[CrossRef](#)] [[PubMed](#)]
105. Chapadense, F.G.G.; Fernandes, E.K.K.; Lima, J.B.P.; Martins, A.J.; Silva, L.C.; Rocha, W.T.; Santos, A.H.; Cravo, P. Phenotypic and genotypic profile of pyrethroid resistance in populations of the mosquito *Aedes aegypti* from Goiânia, Central West Brazil. *Rev. Soc. Bras. Med. Trop.* **2015**, *48*, 607–609. [[CrossRef](#)]
106. Cruz, L.C.T.A.; Serra, O.P.; Leal-Santos, F.A.; Ribeiro, A.L.M.; Shhessarenko, R.D.; Santos, M.A. Natural transovarial transmission of dengue virus 4 in *Aedes aegypti* from Cuiabá, State of Mato Grosso, Brazil. *Rev. Soc. Bras. Med. Trop.* **2015**, *48*, 18–25. [[CrossRef](#)]
107. Dias, C.N.; Alves, L.P.L.; Rodrigues, K.A.F.; Brito, M.C.A.; Rosa, C.S.; Amaral, F.M.; Monteiro, O.D.; Andrade, E.H.; Maia, J.G.; Moraes, D.F. Chemical composition and larvicidal activity of essential oils extracted from Brazilian Legal Amazon plants against *Aedes aegypti* L. (Diptera: Culicidae). *Evid.-Based Complement. Altern. Med.* **2015**, *2015*, 490765. [[CrossRef](#)] [[PubMed](#)]
108. Santana, H.T.; Trindade, F.T.T.; Stabeli, R.G.; Silva, A.A.E.; Militão, J.S.L.T.; Facundo, V.A. Essential oils of leaves of Piper species display larvicidal activity against the dengue vector, *Aedes aegypti* (Diptera: Culicidae). *Rev. Bras. Plantas Med.* **2015**, *17*, 105–111. [[CrossRef](#)]
109. Schultes, O.L.; Morais, M.H.F.; Cunha, M.C.M.; Sobral, A.; Caiaffa, W.T. Spatial analysis of dengue incidence and *Aedes aegypti* ovitrap surveillance in Belo Horizonte, Brazil. *Trop. Med. Int. Health* **2021**, *26*, 237–255. [[CrossRef](#)] [[PubMed](#)]
110. Soares, F.A.; Silva, J.C.; Oliveira, J.B.B.S.; Abreu, F.V.S. Study of oviposition behavior of *Aedes aegypti* in two neighborhoods under the influence of semi-arid climate in the municipality of Salinas, State of Minas Gerais, Brazil. *Rev. Patol. Trop.* **2015**, *44*, 77–88.
111. Taranto, M.F.R.; Pessanha, J.E.M.; Santos, M.; Andrade, A.C.S.P.; Camargos, V.N.; Alves, S.N.; Oliveira, C.D.L.; Taranto, A.G.; Santos, L.L.; Magalhães, J.C.; et al. Dengue outbreaks in Divinópolis, south-eastern Brazil and the geographic and climatic distribution of *Aedes albopictus* and *Aedes aegypti* in 2011–2012. *Trop. Med. Int. Health* **2015**, *20*, 77–88. [[CrossRef](#)]
112. Wermelinger, E.D.; Ferreira, A.P.; Carvalho, R.W.; Silva, A.A.; Benigno, C.V. *Aedes aegypti* eggs oviposited on water surface collected from field ovitraps in Nova Iguaçu City, Brazil. *Rev. Soc. Bras. Med. Trop.* **2015**, *48*, 770–772. [[CrossRef](#)]

113. Aguirre-Obando, O.A.; Pietrobon, A.J.; Dalla Bona, A.C.; Navarro-Silva, M.A. Contrasting patterns of insecticide resistance and knockdown resistance (kdr) in *Aedes aegypti* populations from Jacarezinho (Brazil) after a dengue outbreak. *Rev. Bras. Entomol.* **2016**, *60*, 94–100. [[CrossRef](#)]
114. Chediak, M.; Pimenta, F.G., Jr.; Coelho, G.E.; Braga, I.A.; Lima, J.B.P.; Cavalcante, K.R.L.J.; Sousa, L.C.; Melo-Santos, M.A.V.; Macoris, M.L.G.; Araújo, A.P.; et al. Spatial and temporal country-wide survey of temephos resistance in Brazilian populations of *Aedes aegypti*. *Mem. Inst. Oswaldo Cruz* **2016**, *111*, 311–321. [[CrossRef](#)]
115. Costa, C.F.; Passos, R.A.; Lima, J.B.P.; Roque, R.A.; Sampaio, V.S.; Campolina, T.B.; Secundino, N.F.C.; Pimenta, P.F.P. Transovarial transmission of DENV in *Aedes aegypti* in the Amazon basin: A local model of xenomonitoring. *Parasites Vectors* **2017**, *10*, 249. [[CrossRef](#)]
116. Dias, L.S.; Macoris, M.L.G.; Andrighetti, M.T.M.; Otrera, V.C.G.; Dias, A.S.; Bauzer, L.G.S.R.; Rodovalho, C.D.; Martins, A.J.; Lima, J.B. Toxicity of spinosad to temephos-resistant *Aedes aegypti* populations in Brazil. *PLoS ONE* **2017**, *12*, e0173689.
117. Fontoura, N.G.; Bellinato, D.F.; Valle, D.; Lima, J.B.P. The efficacy of a chitin synthesis inhibitor against field populations of organophosphate-resistant *Aedes aegypti* in Brazil. *Mem. Inst. Oswaldo Cruz* **2012**, *107*, 387–395. [[CrossRef](#)]
118. Hendy, A.; Valério, D.; Fé, N.F.; Hernandez-Acosta, E.; Mendonça, C.; Andrade, E.; Pedrosa, I.; Costa, E.R.; Andes Júnior, J.T.; Assunção, F.P.; et al. Microclimate and the vertical stratification of potential bridge vectors of mosquito-borne viruses captured by nets and ovitraps in a central Amazonian forest bordering Manaus, Brazil. *Sci. Rep.* **2021**, *11*, 21129. [[CrossRef](#)] [[PubMed](#)]
119. Prado, G.P.; Maciel, J.S.; Leite, G.R.; Souza, M.A.A. Influence of shading and pedestrian traffic on the preference of *Aedes (Stegomyia) aegypti* (Diptera: Culicidae) for oviposition microenvironments. *J. Vector Ecol.* **2017**, *42*, 155–160. [[CrossRef](#)] [[PubMed](#)]
120. Albuquerque, B.C.; Pinto, R.C.; Sadahiro, M.; Sampaio, V.S.; Castro, D.B.; Terrazas, W.C.M.; Mustafa, L.M.; Costa, C.F.; Passos, R.A.; Lima, J.B.P.; et al. Relationship between local presence and density of *Aedes aegypti* eggs with dengue cases: A spatial analysis approach. *Trop. Med. Int. Health* **2018**, *23*, 1269–1279. [[CrossRef](#)] [[PubMed](#)]
121. Ayllón, T.; Câmara, D.C.P.; Morone, F.C.; Gonçalves, L.S.; Barros, F.S.M.; Brasil, P.; Carvalho, M.S.; Honorio, N.A. Dispersion and oviposition of *Aedes albopictus* in a Brazilian slum: Initial evidence of Asian tiger mosquito domiciliation in urban environments. *PLoS ONE* **2018**, *13*, e0195014. [[CrossRef](#)]
122. Garcia, G.A.; David, M.R.; Martins, A.J.; Maciel-de-Freitas, R.; Linss, J.G.B.; Araújo, S.C.; Lima, J.B.; Valle, D. The impact of insecticide applications on the dynamics of resistance: The case of four *Aedes aegypti* populations from different Brazilian regions. *PLoS Negl. Trop. Dis.* **2018**, *12*, e0006227. [[CrossRef](#)]
123. Garziera, L.; Pedrosa, M.C.; Souza, F.A.; Gomez, M.; Moreira, M.B.; Virginio, J.F.; Capurro, M.L.; Carvalho, D.O. Effect of interruption of over-flooding releases of transgenic mosquitoes over wild population of *Aedes aegypti*: Two case studies in Brazil. *Entomol. Exp. Appl.* **2017**, *164*, 327–339. [[CrossRef](#)]
124. La Corte, R.; Melo, V.A.D.; Dolabella, S.S.; Marteis, L.S. Variation in temephos resistance in field populations of *Aedes aegypti* (Diptera: Culicidae) in the State of Sergipe, Northeast Brazil. *Rev. Soc. Bras. Med. Trop.* **2018**, *51*, 284–290. [[CrossRef](#)]
125. Dos Santos, T.P.; Roiz, D.; Abreu, F.V.S.; Luz, S.L.B.; Santalucia, M.; Jiolle, D.; Santos Neves, M.S.; Simard, F.; Lourenço-de-Oliveira, R.; Paupy, C. Potential of *Aedes albopictus* as a bridge vector for enzootic pathogens at the urban-forest interface in Brazil. *Emerg. Microbes Infect.* **2018**, *7*, 1–8. [[CrossRef](#)]
126. Sacramento, R.H.M.; Araújo, F.M.C.; Lima, D.M.; Alencar, C.H.; Martins, V.E.P.; Araújo, L.V.; Oliveira, T.C.; Cavalcanti, L.P.G. Dengue fever and *Aedes aegypti* in indigenous Brazilians: Seroprevalence, risk factors, knowledge and practices. *Trop. Med. Int. Health* **2018**, *23*, 596–604. [[CrossRef](#)]
127. Silva, W.R.; Soares-da-Silva, J.; Ferreira, F.A.S.; Rodrigues, I.B.; Tadei, W.P.; Zequi, J.A.C. Oviposition of *Aedes aegypti* and *Aedes albopictus* (Diptera: Culicidae) under laboratory and field conditions using ovitraps associated to different control agents, Manaus, Amazonas, Brazil. *Rev. Bras. Entomol.* **2018**, *62*, 304–310. [[CrossRef](#)]
128. Noleto, J.V.O.; Moraes, H.L.M.N.; Lima, T.M.; Rodrigues, J.G.M.; Cardoso, D.T.; Lima, K.C.; Melo, R.S.S.; Miranda, G.S. Use of ovitraps for the seasonal and spatial monitoring of *Aedes* spp. in an area endemic for arboviruses in Northeast Brazil. *J. Infect. Dev. Ctries* **2020**, *14*, 387–393. [[CrossRef](#)]
129. Piovezan, R.; Visockas, A.; Azevedo, T.S.; Von Zuben, C.J.; Sallum, M.A.M. Spatial-temporal distribution of *Aedes (Stegomyia) aegypti* and locations of recycling units in southeastern Brazil. *Parasites Vectors* **2019**, *12*, 541. [[CrossRef](#)] [[PubMed](#)]
130. Sá, E.L.R.; Rodovalho, C.M.; Sousa, N.P.R.; Sá, I.L.R.; Bellinato, D.F.; Dias, L.S.; Silva, L.C.; Martins, A.J.; Lima, J.B.P. Evaluation of insecticide resistance in *Aedes aegypti* populations connected by roads and rivers: The case of Tocantins state in Brazil. *Mem. Inst. Oswaldo Cruz* **2019**, *114*, e180318. [[CrossRef](#)] [[PubMed](#)]
131. Saraiva, J.F.; Maitra, A.; Galardo, A.K.R.; Scarpassa, V.M. First record of *Aedes (Stegomyia) albopictus* in the state of Amapá, northern Brazil. *Acta Amaz.* **2019**, *49*, 36–40. [[CrossRef](#)]
132. Soares, E.N.L.; Santos, M.A.B.; Macedo, L.O.; Santos, C.V.B.; Agra, M.C.R.; Alves, L.C.; Ramos, R.A.N.; Carvalho, G.A.C. Spatial distribution of *Aedes aegypti* (Diptera: Culicidae) in vulnerable areas for the transmission of arboviruses. *J. Bras. Soc. Trop. Med.* **2019**, *52*, e20180341. [[CrossRef](#)]

133. Alencar, J.; Mello, C.F.; Guimarães, A.É.; Maia, D.A.; Balbino, V.Q.; Freitas, M.T.S.; Marcondes, C.B. The first detection of a population of *Aedes aegypti* in the Atlantic Forest in the state of Rio de Janeiro, Brazil. *Trop. Zool.* **2020**, *33*, 77–82. [[CrossRef](#)]
134. Barbosa, R.M.R.; Melo-Santos, M.A.V.; Silveira, J.C., Jr.; Silva-Filha, M.H.N.L.; Souza, W.V.; Oliveira, C.M.F.; Ayres, C.F.J.; Xavier, M.N.; Rodrigues, M.P.; Santos, S.A.; et al. Infestation of an endemic arbovirus area by sympatric populations of *Aedes aegypti* and *Aedes albopictus* in Brazil. *Mem. Inst. Oswaldo Cruz* **2020**, *115*, e190437. [[CrossRef](#)]
135. Carvalho, B.L.; Germano, R.N.L.; Braga, K.M.L.; Araújo, E.R.F.; Rocha, D.A.; Obara, M.T. Susceptibility of *Aedes aegypti* populations to Pyriproxyfen in the Federal District of Brazil. *J. Bras. Soc. Trop. Med.* **2020**, *53*, e20190489.
136. Leandro, A.S.; Lopes, R.D.; Martins, C.A.; Rivas, A.V.; da Silva, I.; Galvão, S.R.; Maciel-de-Freitas, R. The adoption of the One Health approach to improve surveillance of venomous animal injury, vector-borne and zoonotic diseases in Foz do Iguaçu, Brazil. *PLoS Negl. Trop. Dis.* **2020**, *14*, e0009109. [[CrossRef](#)]
137. MacCormack-Gelles, B.; Lima Neto, A.S.; Sousa, G.S.; do Nascimento, O.J.; Castro, M.C. Evaluation of the usefulness of *Aedes aegypti* rapid larval surveys to anticipate seasonal dengue transmission between 2012–2015 in Fortaleza, Brazil. *Acta Trop.* **2020**, *205*, 105391. [[CrossRef](#)]
138. Maia, D.A.; Bastos, A.Q.; Leite, P.J.; Gil-Santana, H.R.; Silva, J.S.; Alencar, J. Comparative analysis between sampling methods for immature mosquitoes in an Atlantic Forest fragment in Brazil. *J. Am. Mosq. Control Assoc.* **2020**, *36*, 245–248. [[CrossRef](#)]
139. Moura, M.C.B.M.; Oliveira, J.V.; Pedreira, R.M.; Tavares, A.M.; Souza, T.A.; Lima, K.C.; Barbosa, I.R. Spatio-temporal dynamics of *Aedes aegypti* and *Aedes albopictus* oviposition in an urban area of northeastern Brazil. *Trop. Med. Int. Health* **2020**, *25*, 1510–1521. [[CrossRef](#)]
140. Nascimento, K.L.C.; Silva, J.F.M.; Zequi, J.A.C.; Lopes, J. Comparison between larval survey index and positive ovitrap index in the evaluation of populations of *Aedes (Stegomyia) aegypti* (Linnaeus, 1762) north of Paraná, Brazil. *Environ. Health Insights* **2020**, *14*, 1178630219886570. [[CrossRef](#)]
141. Pedrosa, M.C.; Borges, M.A.Z.; Eiras, Á.E.; Caldas, S.; Cecílio, A.B.; Brito, M.F.; Ribeiro, S.P. Invasion of tropical montane cities by *Aedes aegypti* and *Aedes albopictus* (Diptera: Culicidae) depends on continuous warm winters and suitable urban biotopes. *J. Med. Entomol.* **2021**, *58*, 333–342. [[CrossRef](#)]
142. Sá, G.; Gómez-Hernández, C.; Rezende-Oliveira, K. Ovitrap to monitor the incidence of *Aedes aegypti*. *Int. J. Mosq. Res.* **2020**, *6*, 40–44.
143. Santos, V.S.V.; Limongi, J.E.; Pereira, B.B. Association of low concentrations of pyriproxyfen and spinosad as an environment-friendly strategy to rationalize *Aedes aegypti* control programs. *Chemosphere* **2020**, *247*, 125795. [[CrossRef](#)] [[PubMed](#)]
144. Soares, A.P.M.; Rosário, I.N.G.; Silva, I.M. Distribution and preference for oviposition sites of *Aedes albopictus* (Skuse) in the metropolitan area of Belém, in the Brazilian Amazon. *J. Vector Ecol.* **2020**, *45*, 312–320. [[CrossRef](#)] [[PubMed](#)]
145. Macêdo, S.F.; Silva, K.A.; Vasconcelos, R.B.; Sousa, I.V.; Mesquita, L.P.S.; Barakat, R.D.M.; Fernandes, H.M.C.; Queiroz, A.C.M.; Santos, G.P.G.; Filho, V.C.B.; et al. Scaling up of eco-bio-social strategy to control *Aedes aegypti* in highly vulnerable areas in Fortaleza, Brazil: A cluster, non-randomized controlled trial protocol. *Int. J. Environ. Res. Public Health* **2021**, *18*, 1278. [[CrossRef](#)]
146. Martinez, J.M.; Rodrigues, J.; Marreto, R.N.; Mascarín, G.M.; Fernandes, É.K.K.; Humber, R.A.; Luz, C. Efficacy of focal applications of a mycoinsecticide to control *Aedes aegypti* in Central Brazil. *Appl. Microbiol. Biotechnol.* **2021**, *105*, 8703–8714. [[CrossRef](#)]
147. Oliveira, M.S.; Silva, J.S.; Viana, J.L.; Tadei, W.P.; Pinheiro, V.C.S. Efficiency of oviposition traps with biolarvicides for monitoring *Aedes aegypti* and *Aedes albopictus* (Diptera, Culicidae), northeast Brazil. *Acta Sci. Biol. Sci.* **2022**, *44*, e59231. [[CrossRef](#)]
148. da Silva, K.R.; da Silva, W.R.; Silva, B.P.; Arcos, A.N.; da Silva Ferreira, F.A.; Soares-da-Silva, J.; Pontes, G.O.; Roque, R.A.; Tadei, W.P.; Navarro-Silva, M.A.; et al. New traps for the capture of *Aedes aegypti* (Linnaeus) and *Aedes albopictus* (Skuse) (Diptera: Culicidae) eggs and adults. *PLoS Negl. Trop. Dis.* **2021**, *15*, e0008813. [[CrossRef](#)] [[PubMed](#)]
149. Teixeira, A.F.; de Brito, B.B.; Correia, T.M.L.; Viana, A.I.S.; Carvalho, J.C.; da Silva, F.A.F.; Santos, M.L.; da Silveira, E.A.; Neto, H.P.; da Silva, N.M.; et al. Simultaneous circulation of Zika, Dengue, and Chikungunya viruses and their vertical co-transmission among *Aedes aegypti*. *Acta Trop.* **2021**, *215*, 105819. [[CrossRef](#)] [[PubMed](#)]
150. Sanchez-Gendriz, I.; de Souza, G.F.; de Andrade, I.G.M.; Doria Neto, A.D.; Tavares, A.M.; Barros, D.M.S.; de Moraes, A.H.; Galvão-Lima, L.J.; de Medeiros Valentim, R.A. Data-driven computational intelligence applied to dengue outbreak forecasting: A case study at the scale of the city of Natal, RN-Brazil. *Sci. Rep.* **2022**, *12*, 6550. [[CrossRef](#)]
151. do Nascimento, J.F.; Palioto-Pescim, G.F.; Pescim, R.R.; Sukanuma, M.S.; Zequi, J.A.C.; Golias, H.C. Influence of abiotic factors on the oviposition of *Aedes (Stegomyia) aegypti* (Diptera: Culicidae) in Northern Paraná, Brazil. *Int. J. Trop. Insect Sci.* **2022**, *42*, 2215–2220. [[CrossRef](#)]
152. Pereira, L.P.; Teixeira, C.W.; Rodrigues, M.F.R.; Marteleto, N.C.; da Silva, S.I.A.; Pujoni, D.G.F.; Casteluber, M.C.F. Contribution of ovitraps in the control of the *Aedes aegypti* vector and reduction of dengue cases in the municipality of Ibitiré in Minas Gerais. *Uningá Rev.* **2022**, *37*, eURJ4418. [[CrossRef](#)]

153. Piovezan, R.; de Azevedo, T.S.; Faria, E.; Veroneze, R.; Von Zuben, C.J.; Von Zuben, F.J.; Sallum, M.A.M. Assessing the effect of *Aedes (Stegomyia) aegypti* (Linnaeus, 1762) control based on machine learning for predicting the spatiotemporal distribution of eggs in ovitraps. *Dialogues Health* **2022**, *1*, 100003. [[CrossRef](#)]
154. de Souza, S.J.P.; de Camargo Guaraldo, A.; Honório, N.A.; Câmara, D.C.P.; Sukow, N.M.; Machado, S.T.; dos Santos, C.N.D.; da Costa-Ribeiro, M.C.V. Spatial and temporal distribution of *Aedes aegypti* and *Aedes albopictus* oviposition on the coast of Paraná, Brazil, a recent area of dengue virus transmission. *Trop. Med. Infect. Dis.* **2022**, *7*, 246. [[CrossRef](#)]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.