Antimicrobial Chemotherapy Conference 2026.
© 2026, British Society for Antimicrobial Chemotherapy.

Exploring Marburg and Nipah Viruses in Global Research: A Neglected Role of Natural Products in Comparison with COVID-19

Eman A. Makhlouf[1,2] , Adel A. Esmail[3] , Mona M. Okba[3,4]

1 Clinical Pharmacy PharmD Undergraduate Program, Faculty of Pharmacy, Cairo University, Cairo, 11562, Egypt
2 Department of Clinical Pharmacy, Faculty of Pharmacy, Modern University For Technology & Information, Cairo, 11585, Egypt
3 School of Science and Engineering, The American University in Cairo, New Cairo, Cairo, 11835, Egypt
4 Department of Pharmacognosy, Faculty of Pharmacy, Cairo University, Cairo, 11562, Egypt

INTRODUCTION & AIM

Over the past few years, COVID-19 emerged as a pandemic with widespread morbidity and mortality across the globe with early (2020-2021) pandemic fatality rate of 1.9–3%(1), whereas Marburg and Nipah viruses remain confined mainly to Africa and South/Southeast Asia, respectively. Marburg and Nipah viruses are notable for their severe outbreaks and high fatality rates, frequently surpassing 40–80%(2). This study aims to examine the volume of the international publications on Marburg and Nipah viruses, in addition to the antivral effects of natural products against these viruses in comparison with COVID-19.

METHOD

A co-occurrence analysis of the available literature from Scopus, PubMed, and Web of Science databases was conducted using network visualization (VOSviewer).

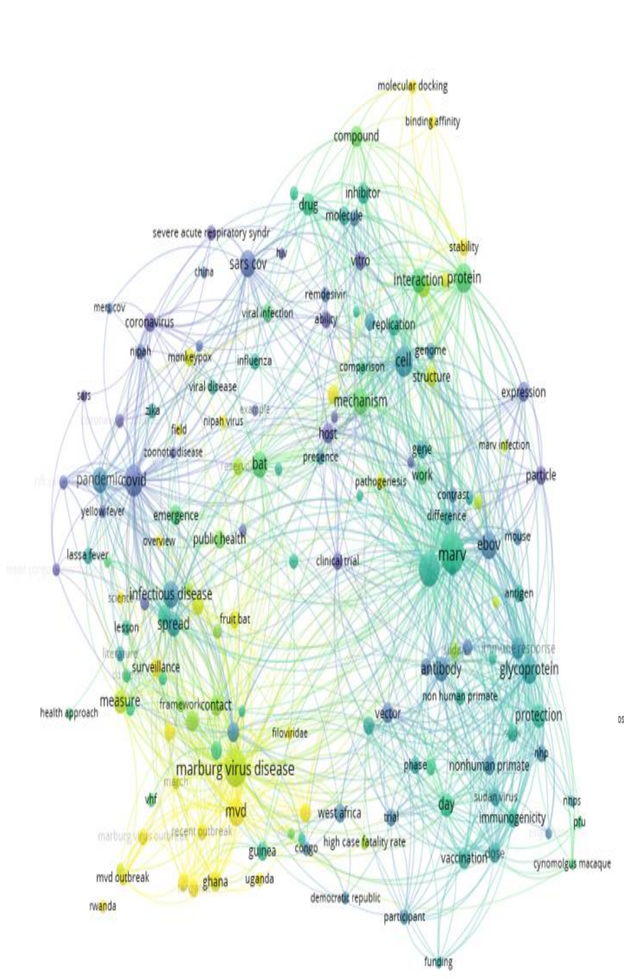

Figure. 1

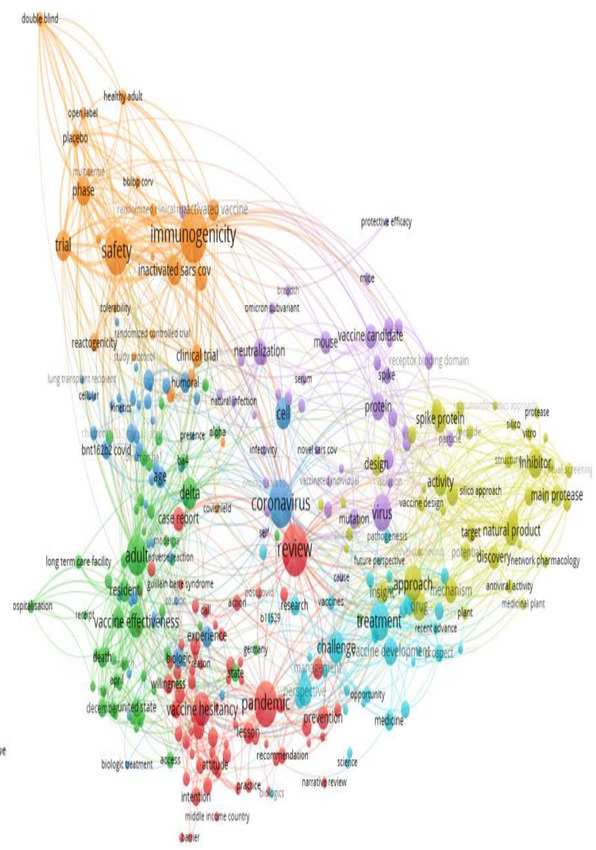

Figure. 2

Figures. 1 and 2 show the Network map of keywords co-occurrences for research, as follows: Natural Products or phytoconstituents or primary metabolites or secondary metabolite And Marbrug and Nipah viruses. Additionally, Natural Products or phytoconstituents or primary metabolites or secondary metabolites And COVID-19 virus, respectively. (plot created by VOSviewer software).

RESULTS & DISCUSSION

During Collecting the available research articles, Research about Marburg and Nipah viruses is limited but emerging, as shown in Figure (3)

The co-occurrence analysis revealed that terms such as Marburg virus, Marburg virus disease (Occurrence 62, TLS 64), Marburg virus infection, Nipah virus disease, Nipah virus outbreak, and Nipah (Occurrence 39, TLS 45) are common search terms in the literature and exhibited strong associations with India and Bangladesh. But not as popular as COVID (Occurrence 77, TLS 720). Moreover, coronavirus is strongly associated with natural products (Occurrence 108, TLS 212), as shown in Figure. (4), while the antiviral effects of medicinal plants against the Marburg and Nipah viruses remain unexplored to date. In addition, most of these studies are on nonhuman primates and *in silico* studies.

The analysis showed a progressive growth in the publication volume for Marburg and Nipah viruses, rising from 8 documents in 2015 to 163 in 2025, while that dealing with COVID showed a significant spike occurring in 2019 and 2020 coinciding with the COVID-19 pandemic, as shown in Figures (3 and 5). Over half of these publications were original research articles, with Medicine being the leading subject area, followed by Pharmacology. The United States emerged as the leading contributor to research about Marburg and Nipah viruses Figure (6). The authors affiliated with the National Institute of Health (NIH) and the University of Texas are the most productive.

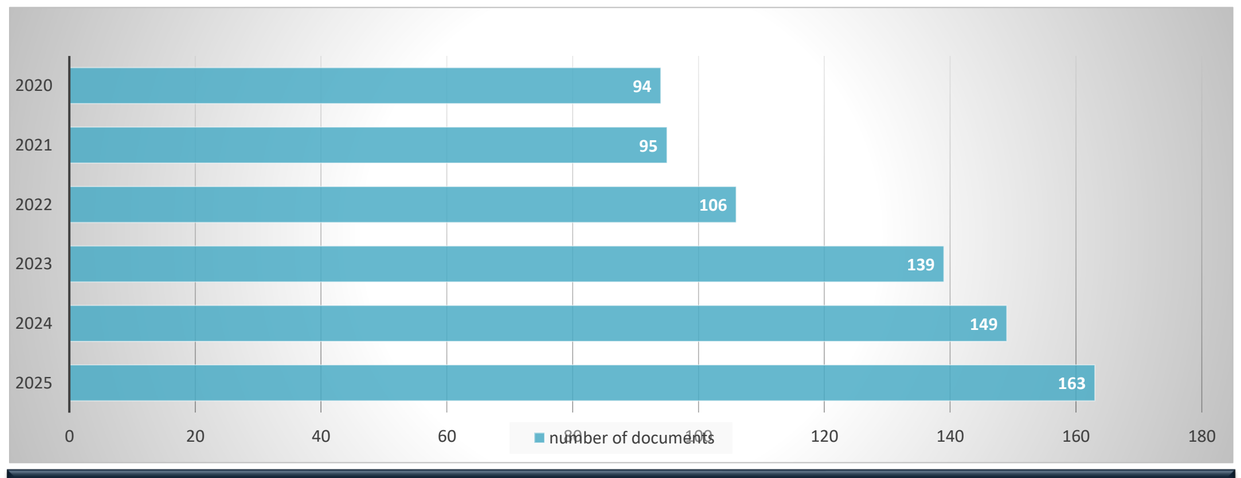

Figure. 3. Number of published articles which discuss Marburg and Nipah viruses / year.

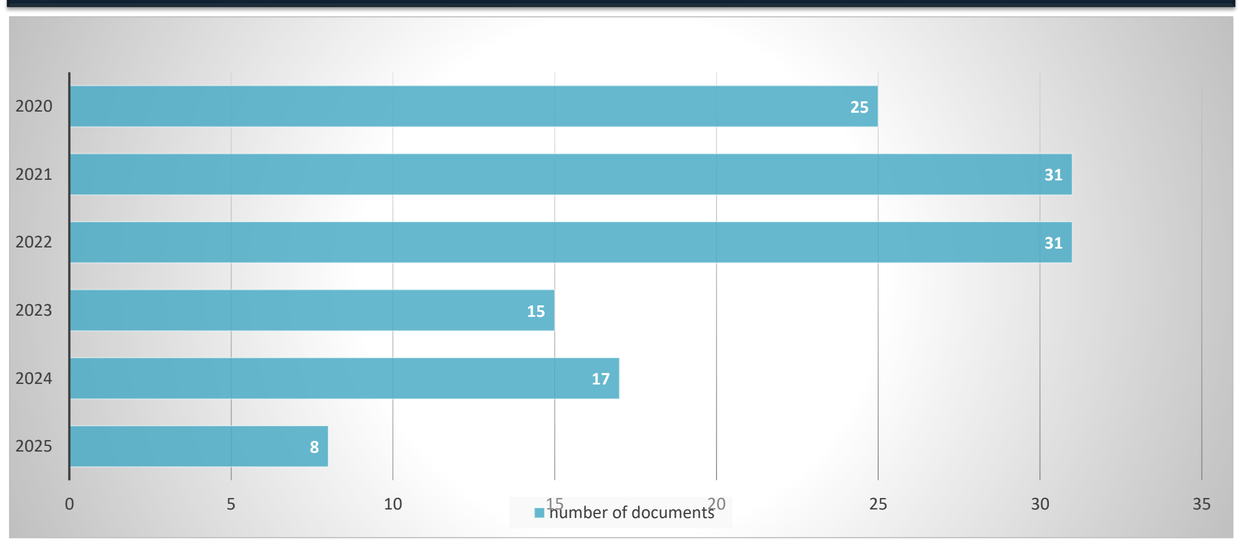

Figure. 4. Number of published articles which discuss COVID-19 and the role of Natural products / year.

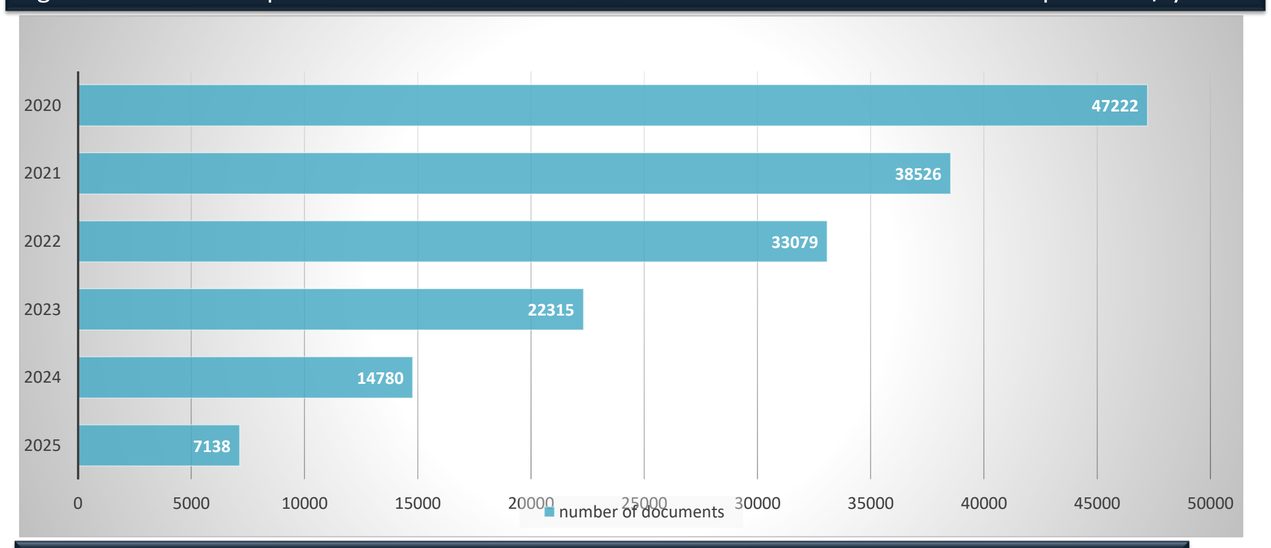

Figure. 5. Number of published articles which discuss COVID-19 / year.

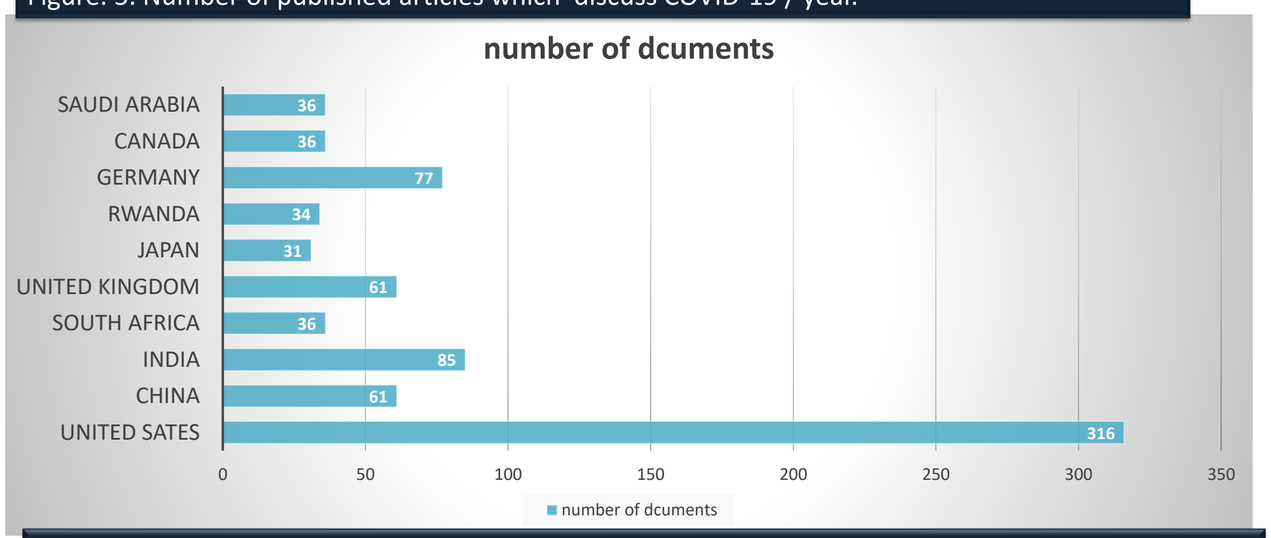

Figure. 6. Number of published articles which discuss Marburg and Nipah viruses in different countries.

FUTURE WORK / REFERENCES

Further detailed studies are urgently needed to explore the antiviral potential of natural products against Marburg and Nipah viruses, particularly through well-designed *in vivo* and clinical studies.

References

(1) Keisam A, Kulabidhu H, Singh TB, Devi LB, Akham N. Morbidity and mortality pattern of COVID-19 patients and its associated risk factors: A cross-sectional study. J Family Med Prim Care. 2022 Sep;11(9):5643-5648. doi: 10.4103/jfmpc.jfmpc_997_22. Epub 2022 Oct 14. PMID: 36505546; PMCID: PMC9730952.
(2) Sun YQ, Zhang YY, Liu MC, Chen JJ, Li TT, Liu YN, Zhang LY, Wang T, Yu LJ, Che TL, Tang T, Xu Q, Lv CL, Jiang BG, Golding N, Mehlman ML, Hay SI, Fang LQ, Liu W. Mapping the distribution of Nipah virus infections: a geospatial modelling analysis. Lancet Planet Health. 2024 Jul;8(7):e463-e475. doi: 10.1016/S2542-5196(24)00119-0. PMID: 38969474; PMCID: PMC12513742.