DOI : 10.5958/2277-8934.2026.00010.2 *Vol 33 No 1, p 77-83*

MY JOURNEY TO CAMEL SCIENCE: A PHARMACOLOGIST AND DRUG DISCOVERY SPECIALIST FOR THE CAMEL HEALTH

Mahmoud Kandeel[1,2]

[1]Department of Biomedical Sciences, College of Veterinary Medicine, King Faisal University, 31982 Al-Ahsa, Saudi Arabia
[2]Department of Pharmacology, Faculty of Veterinary Medicine, Kafrelsheikh University, 33516 Kafrelsheikh, Egypt

ABSTRACT

This article presents my personal and scientific perspective as a pharmacologist and drug discovery specialist for camel research. My main aim over the last ten years was to provide a multidisciplinary contributions for the advancement of camel health through pharmacology, molecular modelling, bioinformatics, and veterinary medicine. Between 2014 and 2024, this research resulted in 54 publications across 26 journals with a strong international collaboration network involving 99 coauthors. The main areas of research were drug discovery for Middle East Respiratory Syndrome Coronavirus (MERS-CoV), pharmacokinetics of veterinary drugs in camels, bibliometric research on camel science around the globe, meta-analyses for the therapeutic applications of camel milk, camels as hosts for zoonotic diseases, trypanosomiasis as a neglected disease in camels, identification of antiparasitic molecules, molecular modeling of pathogen–host interactions including the understanding of camel-specific metabolic pathways. The use of a One Health strategy through these multidisciplinary contributions resulted in the discovery of new therapeutic options for camel diseases. The research also led to 15 patents in drug discovery, including United States patents targeting MERS-CoV fusion inhibition and broad-spectrum antitrypanosomal compounds relevant to camel health. These interdisciplinary studies combined with my experimental pharmacology findings represent an integrated effort in computational drug discovery, in vitro investigative pharmacology, and One Health approach applied to camel diseases that deserves a new therapeutic option. Personally, I am grateful for the opportunities I was blessed with through this journey and I look forward to further efforts and discoveries that will contribute effectively to camel health and welfare.

Key words: Bibliometric analysis, camel milk, camel research, drug discovery, mers-cov, molecular modeling, one health, pharmacokinetics, trypanosomiasis, veterinary pharmacology

When Camels Know You Care: A Heartfelt Bond with Camels and a Mission to Heal

Fig 1 vividly reflects my deep affection for camels and the strong social bond I share with them. Over the years, I have developed not only a scientific interest in camels but also a personal connection that goes beyond research. Every visit to camel farms brings moments of genuine warmth—camels approaching me with affection, recognising my presence, and initiating physical contact. This behaviour strengthens my belief in a unique hypothesis: that camels can sense human emotions and remember individuals who treat them with kindness. In other words, camels can recognise that I love them, and I want to treat their diseases. Their response to my visits is always joyful, further confirming the emotional intelligence of these miraculous animals.

Beyond this emotional connection, my professional commitment lies in treating camel diseases and exploring innovative drug therapies to improve their health. I am dedicated to advancing research that leads to the development of effective, camel-specific medications. My presence in the field with camels represents more than routine work—it is a convergence of passion, compassion, and scientific purpose aimed at serving the well-being of camels through discovery and care.

Publications and its metrics

Between 2014 and 2024, my scientific journey in camel research has been marked by the publication of 54 documents across 26 sources, reflecting a consistent annual growth rate of 23.11% (Fig 2). This body of work, shaped through collaboration with 99 co-authors and a high international co-authorship rate of 90.74%, underscores the global relevance and cooperative spirit of this research. With an average of 4.56 co-authors per publication and over 1,900 references cited, my work demonstrates both depth

SEND REPRINT REQUEST TO MAHMOUD KANDEEL email: mkandeel@kfu.edu.sa

and breadth in scholarly engagement. The average document age of 4.3 years, highlighting the sustained influence and evolving nature of my contributions to camel health and pharmacological sciences.

My research keywords

The word cloud illustrates the central themes and research interests that have shaped my scholarly contributions over the past decade, with "camel" emerging as the dominant keyword, reflecting a strong focus on camel health and biology (Fig 2). Other prominent terms such as "molecular modeling," "pharmacokinetics," "molecular dynamics," and "drug discovery" highlight the integration of computational and pharmacological approaches in my work. Key disease-related terms like "coronavirus," "MERS-CoV," "SARS-CoV-2," and "*Trypanosoma evansi*" underscore my engagement with infectious diseases of zoonotic and veterinary importance. Additionally, the presence of keywords such as "meta-analysis," "bioinformatics," "pharmacokinetics," "molecular dynamics," and "vaccines" emphasises the methodological diversity, while topics like "camel milk," "docking," and "cephalosporins" reflect my exploration of therapeutics and natural products within the context of camel medicine and one health.

The citation metrics

The publications received a total of 1,033 citations. The highest-cited paper has 295 citations, and the second-highest has 148. Five papers have over 50 citations, while 11 papers have 20 or more. In contrast, 14 papers have fewer than 3 citations, and 5 papers have zero citations, mostly from 2024. The mean citation count per paper is approximately 19.1, while the median is 5. Such high citation count in some papers is attributed to the impact of the recently emerged viral infections.

Research themes and clusters

My research can be divided into five clusters (Fig 2). Cluster 1 includes high-impact topics related to viral infections, such as COVID-19, SARS-CoV-2, MERS-CoV, coronavirus, bioinformatics, and molecular dynamics, all of which are associated with high citation rates and significant scholarly attention, especially during and after the pandemic period. Cluster 2 centres around camel-related research, encompassing terms like camel, cephalosporins, and pharmacokinetics. Cluster 3 brings together keywords such as camel milk, meta-analysis, vaccine, and MERS-CoV. Cluster 4 contains drug discovery-oriented terms and efforts against camel parasites such as drug discovery, pyrimidine, and *Trypanosoma evansi*. Lastly, Cluster 5 features molecular and enzymatic research themes with keywords like cytochrome P450, docking, and molecular modeling.

The annual scientific production

The annual scientific production ranged from 1-4 annual articles from 2014 to 2019, followed by a sharp rise in 2020 with 14 published articles. From 2021 to 2024, the output remained significant, contributing consistently to a total of 54 publications over the period (Table 1).

The sources of publications

The publications were distributed across 26 journals, with the Journal of Camel Practice and Research leading with 12 articles, followed by Frontiers in Veterinary Science with 6 articles. Other notable sources include Biological and Pharmaceutical Bulletin, Journal of Medical Virology, Open Veterinary Journal, Tropical Animal Research and Production, Biomolecules and Therapeutics, and Computational Biology and Chemistry (Table 1).

Top coauthors

While 99 coauthors were identified the most frequent co-authors are Al-Taher A (20), Al-Nazawi M (11), Marzok M (7), Albokhadaim I (5), Fayez M (5), and Venugopala KN (5). Other notable co-authors include Al Khodair KM, Alhojaily S, Kitade Y, Kwon H-J, Morsy MA, and Park BK, each with 4 publications (Table 1).

Patents

I was granted 15 patents in drug discovery. Two United States patents are highly relevant to camel health and disease control. The first, US10975126B1, titled "*MERS-CoV Inhibitor Peptides*", involves the development of peptide-based inhibitors targeting the Middle East Respiratory Syndrome Coronavirus (MERS-CoV), a zoonotic virus for which camels are known reservoirs. The second, US11801249B1, titled "*Broad-spectrum antitrypanosomal compounds*", addresses the treatment of trypanosomiasis, a parasitic disease significantly affecting camels, by introducing novel compounds with broad-spectrum efficacy against Trypanosoma species. Both inventions contribute critically to the advancement of camel-related biomedical research and veterinary therapeutics (Fig 3). The full details of publications and patents can be accessed through my Scopus author search (https://www.scopus.com/authid/detail.uri?authorId=22937486100).

MERS-CoV

Preliminary data from our earlier studies highlight the potential of targeting the viral fusion process as an effective strategy against MERS-CoV. Through this approach, we have identified several first-generation inhibitors that exhibit promising antiviral activity (Kandeel 2023; Kandeel *et al,* 2020a; Kandeel *et al,* 2020b; Kandeel *et al,* 2021c). In 2017, we used molecular dynamics simulations to study the structural flexibility of MERS-CoV NSP3 and its interaction with ubiquitin, revealing unique conformational changes and immune evasion mechanisms. The findings emphasise the distinct flexibility of MERS-CoV papain-like protease (Plpro) compared to SARS-CoV, offering insights crucial for designing effective antiviral inhibitors (Alfuwaires *et al,* 2017). In 2020, we explored the antiviral activities of various dendrimers against MERS-CoV (Kandeel *et al,* 2020a). Our evaluation of dendrimers showed that polyanionic types significantly reduced MERS-CoV plaque formation without cytotoxic effects, highlighting their potential as promising antiviral agents.

Further, in 2020, we identified new small-molecule fusion inhibitors targeting the MERS-CoV spike (S) protein through structure-based virtual screening (Kandeel *et al,* 2020b). Screening 1.56 million compounds led to the identification of three potent inhibitors (compounds 22, 73, and 74) that effectively reduced MERS-CoV plaque formation by targeting the fusion process and no observed cytotoxicity in HEK293 and Vero cells.

In 2021, our group conducted a comprehensive study to develop potent peptides aimed at inhibiting MERS-CoV fusion (Kandeel *et al,* 2021c). The study designed eleven mutated peptides targeting the HR1 domain of the MERS-CoV spike protein, several of which showed nanomolar IC_{50} values and over 95%

Table 1. The statistics of scientific production.

Annual Scientific Production		**Sources of publications**	
Year	**Articles**	**Journal**	**Articles**
2014	1	JOURNAL OF CAMEL PRACTICE AND RESEARCH	12
2015	1	FRONTIERS IN VETERINARY SCIENCE	6
2016	2	BIOLOGICAL AND PHARMACEUTICAL BULLETIN	3
2017	4	JOURNAL OF MEDICAL VIROLOGY	3
2018	1	OPEN VETERINARY JOURNAL	3
2019	2	TROPICAL ANIMAL HEALTH AND PRODUCTION	3
2020	14	BIOMOLECULES AND THERAPEUTICS	2
2021	8	COMPUTATIONAL BIOLOGY AND CHEMISTRY	2
2022	6	PAKISTAN VETERINARY JOURNAL	2
2023	7	VETERINARY WORLD	2
2024	8	ACTA VETERINARIA HUNGARICA	1
Total	54	ACTA VIROLOGICA	1
Top coauthors		ANIMALS	1
Coauthor	**Articles**	EXPERT OPINION ON DRUG DISCOVERY	1
AL-TAHER A	20	FRONTIERS IN PHARMACOLOGY	1
AL-NAZAWI M	11	INTERNATIONAL IMMUNOPHARMACOLOGY	1
MARZOK M	7	INTERNATIONAL JOURNAL OF PHARMACOLOGY	1
ALBOKHADAIM I	5	JOURNAL OF ANIMAL AND PLANT SCIENCES	1
FAYEZ M	5	JOURNAL OF BIOMOLECULAR STRUCTURE AND DYNAMICS	1
VENUGOPALA KN	5	JOURNAL OF VIROLOGICAL METHODS	1
AL KHODAIR KM	4	LETTERS IN DRUG DESIGN AND DISCOVERY	1
ALHOJAILY S	4	LIFE SCIENCES	1
KITADE Y	4	ONE HEALTH	1
KWON H-J	4	PEERJ	1
MORSY MA	4	SLOVENIAN VETERINARY RESEARCH	1
PARK BK	4	TROPICAL BIOMEDICINE	1

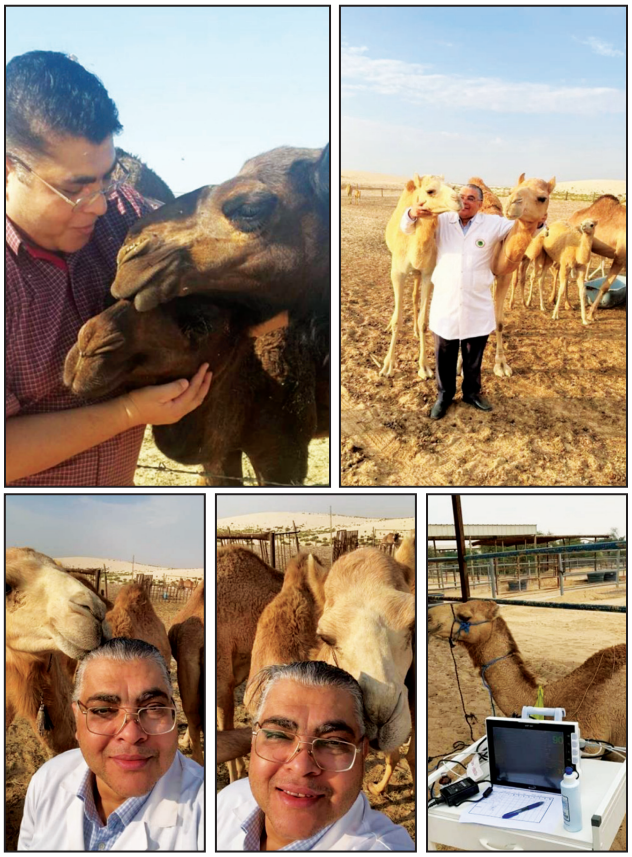

Fig 1. In the company of camels: love, research, and discovery.

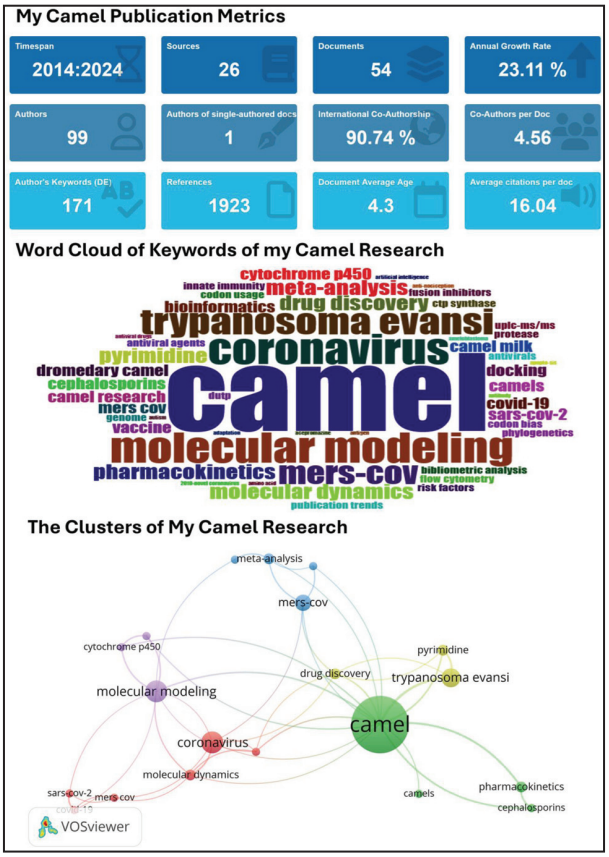

Fig 2. Summary of my camel research.

inhibition of plaque formation at 10 µM without cytotoxicity, effectively blocking viral fusion and entry.

Kandeel *et al* (2022) conducted a meta-analysis to determine the prevalence and seroprevalence of MERS-CoV in camels and humans across sub-Saharan Africa and the Middle East (Kandeel, 2022). This meta-analysis of 13 studies revealed a moderate MERS-CoV prevalence (38.14%) and high seroprevalence (80.66%) in camels, with limited zoonotic transmission to humans, highlighting the need for further research to better understand and control MERS-CoV transmission dynamics. Finally, an important review was published in Expert Opinion on Drug Discovery discussed the major developments and gaps in the discovery of drugs against MERS-CoVs (Kandeel 2023).

Pharmacokinetics

Over the past years, I have conducted research on the pharmacokinetics of drugs in camels, addressing a critical knowledge gap in veterinary pharmacology. My work has included in-depth studies on various antibiotics and sedatives, such as cefquinome, cefotaxime, acepromazine, and ceftiofur. These studies revealed distinctive pharmacokinetic features in camels, including rapid drug distribution, prolonged elimination half-lives, and noticeable tissue distribution compared to other species. Such findings underscore the necessity of camel-specific dosing regimens to ensure efficacy and safety (Altayban *et al,* 2020a; Altayban *et al,* 2020b; Kandeel *et al,* 2021a; Kandeel *et al,* 2021b).

Bibliometric studies

My efforts in the field of bibliometric studies of camel research have led to several analyses exploring regional and global trends in camel-related research. I conducted bibliometric studies across North America, South Asia, North Africa and China, utilising tools like VOSviewer and Bibliometrix to examine publication patterns, collaborative networks, thematic evolution, and disciplinary intersections. These analyses highlighted a growing global interest in camel research beyond traditional regions, with North America showing strong international collaborations, South Asia focusing on camel milk's therapeutic properties and molecular biology, and North Africa emphasising physiology, reproduction, and disease control. In addition, China enriched camel research with unique genomics and food analysis

Fig 3. The MERS-CoV spike and the Trypanosoma`s nucleic acids metabolising enzymes were the main focus of investigations, publications and patents.

studies (Alsaleem and Kandeel, 2024; Kandeel, 2024a; Kandeel *et al,* 2023; Kandeel, 2024b; Naji *et al,* 2024).

Meta-analysis

My efforts in the field of meta-analysis of camel-related topics have focused on systematically evaluating the therapeutic and zoonotic implications of camel milk and MERS-CoV infections. I conducted several reviews and meta-analyses to assess camel milk's efficacy in treating diabetes and autism symptoms, as well as the prevalence and seroprevalence of MERS-CoV in camels and humans. The results demonstrated that camel milk significantly improves HbA1c% in diabetic patients and shows potential in alleviating autism symptoms, though with varying statistical significance. Additionally, the results highlighted the high prevalence of MERS-CoV in camels but noted limited zoonotic transmission to humans (Alkattan *et al,* 2023; Kandeel *et al,* 2024).

Antiparasitic agents in camels

I have focused extensively on the treatment of camel parasites, particularly trypanosomiasis and camel nasal bots. My research includes the discovery of novel antitrypanosomal compounds with broad-spectrum activity (USA patent). Additionally, I have compared the efficacy of various available drugs to optimise therapeutic strategies (Aljasim *et al,* 2024).

Neglected camel diseases

My research has shed light on the overlooked burden of neglected camel diseases, which often lack adequate diagnostic tools, treatments, and surveillance despite their economic and zoonotic impacts. By investigating pathogens like *Trypanosoma evansi*, the research uncovered critical metabolic pathways that could serve as drug targets, while the work on Rift Valley fever virus (RVFV) and bovine viral diarrhea virus (BVDV) highlighted understudied transmission risks in camel populations. Despite the high prevalence of these diseases, limited funding and research focus persist, leaving gaps in vaccine development and control strategies.

Immunology and vaccine response

Through systematic reviews, we evaluated the efficacy of various vaccine platforms, including MVA-based vaccines, ChAdOx1, and DNA vaccines (GLS-5300), in eliciting robust immune responses. These vaccines induce strong antibody and cellular immunity, though durability and cross-protection remain challenges. Additionally, we explored the immunomodulatory effects of camel milk, revealing its potential to enhance anti-inflammatory and antioxidant biomarkers, which could complement vaccine strategies. By integrating bioinformatics and molecular dynamics, we also identified critical epitopes in viral proteins, such as the MERS-CoV spike or N protein, guiding the design of next-generation vaccines with improved specificity and efficacy. Beyond MERS-CoV, our studies on camel leukocyte responses and host-pathogen interactions provided foundational insights into innate and adaptive immunity in dromedaries. For instance, our investigation into cyclooxygenase inhibitors (e.g., lornoxicam) revealed their role in modulating leukocyte function, requiring attention for immunosuppression.

Molecular modelling

Molecular modeling has been instrumental in deciphering the structural and functional dynamics of key microbial and host proteins, particularly in the context of MERS-CoV, Trypanosoma specific and camel-specific metabolic pathways. Using computational techniques such as molecular dynamics simulations, docking studies, and comparative genomics, critical mechanisms of viral entry, drug resistance, host adaptation and specific metabolic differences were uncovered. For instance, studies on MERS-CoV fusion proteins, papain-like protease, and helicase revealed conserved binding sites and allosteric pockets, enabling the rational design of small-molecule inhibitors and peptide-based antivirals. Additionally, modeling of camel

cytochrome P450 enzymes, haemoglobin, insulin, insulin receptor and host and parasite nucleotides metabolising enzymes provided insights into species-specific drug metabolism and enzyme functions (Al-Hizab and Kandeel 2022; Kandeel *et al,* 2022; Kandeel and Suganuma 2024).

Ethics approval and consent to participate

Not applicable

Consent for publication

Not applicable

Availability of data and materials

Available

Competing interests

There is no conflict of interests

Funding

No specific funding.

Acknowledgement

I sincerely thank Dr. Tarun Kumar Gahlot, Editor of the Journal of Camel Practice and Research, for conceptualising "My Journey to Camel Science" and graciously inviting me to share my personal experiences and reflections from my scientific journey in the field of camel research.

References

Al-Hizab FA and Kandeel M. The camels, humans and bovines haemoglobin: In silico and molecular dynamics perspective and binding potency with haeme. Journal of Camel Practice and Research. 2022; 29:305-311. https://doi.org/10.5958/2277-8934. 2022.00042.X

Alfuwaires M, Altaher A and Kandeel M. Molecular dynamic studies of interferon and innate immunity resistance in MERS CoV non-structural protein 3. Biological and Pharmaceutical Bulletin. 2017; 40:345-351. https://doi.org/10.1248/bpb.b16-00870

Aljasim Y, Aljazzar A, Al-Sabi M, Alhojaily S, Albokhadaim I and Kandeel M. Comparative larvicidal potency of ivermectin, doramectin, moxidectin, and eprinomectin against dromedary camel nasal bots (*Cephalopina titillator*). Journal of Camel Practice and Research. 2024; 31:285-289. https://doi.org/10.5958/2277-8934.2024.00054.5

Alkattan A, Alkattan A, Afzal S, Manap ASA and Kandeel M. Camel milk and it's applications in treatment of diabetes: systematic review and meta-analysis. Journal of Camel Practice and Research. 2023; 30:257-265. https://doi.org/10.5958/2277-8934.2023.00033.4

Alsaleem A and Kandeel M. The Trends Of Camel Research In North America: A Bibliometric Approach. Journal of Camel Practice and Research. 2024; 31:131-145. https://doi.org/10.5958/2231-6736.2024.00027.X

Altayban A, Kandeel M, Kitade Y and Al-Nazawi M. A pilot study on the pharmacokinetics of a single intramuscular injection of cefquinome in Arabian camel calves. Acta Veterinaria Hungarica. 2020a; 68:59-64. https://doi.org/10.1556/004.2020.00008

Altayban A, Kandeel M, Tahoun A and Al-Nazawi M. Cefotaxime pharmacokinetics in Arabian camel (*Camelus dromedarius*) calves after single intravenous injection. Tropical Animal Health and Production. 2020b; 52:887-891. https://doi.org/10.1007/s11250-019-02080-0

Kandeel M. Meta-analysis of seroprevalence and zoonotic infections of Middle East respiratory syndrome coronavirus (MERS-CoV): A one-health perspective. One Health. 2022; 15:100436. https://doi.org/10.1016/j.onehlt.2022.100436

Kandeel M. An overview of the recent progress in Middle East Respiratory Syndrome Coronavirus (MERS-CoV) drug discovery. Expert Opinon on Drug Discovery. 2023; 18:385-400. https://doi.org/10.1080/17460441.2023.2192921

Kandeel M. Trends in camel research in south Asia: A bibliometric approach. Veterinary World. 2024a; 17:2763-2773. https://doi.org/10.14202/vetworld.2024.2763-2773

Kandeel M, Al-Taher A, Park BK, Kwon HJ and Al-Nazawi M. A pilot study of the antiviral activity of anionic and cationic polyamidoamine dendrimers against the Middle East respiratory syndrome coronavirus. Journal of Medical Virology. 2020a; 92:1665-1670. https://doi.org/10.1002/jmv.25928

Kandeel M, Almubarak AI, Hussen J, El-Deeb W and Venugopala KN. Pharmacokinetic, clinical, and myeloid marker responses to acepromazine sedation in Arabian camels. Frontiers in Veterinary Science. 2021a; 8. https://doi.org/10.3389/fvets.2021.725841

Kandeel M, El-Deeb W, Fayez M and Ghoneim I. Pharmacokinetics of the long-acting ceftiofur crystalline-free acid in Arabian she-camels (*Camelus dromedarius*). Slovenian Veterinary Research. 2021b; 58:95-101. https://doi.org/10.26873/SVR-1074-2020

Kandeel M, El Sebaei MG, Ba Abdullah MM, Al-Sultan SI and Abdel-Raheem SM. Bioinformatics and molecular modeling of the camel insulin receptor. Journal of Camel Practice and Research. 2022; 29:7-15.

Kandeel M, Morsy MA, Abd El-Lateef HM, Marzok M, El-Beltagi HS, Al Khodair KM, Soliman WE, Albokhadaim I and Venugopala KN. A century of "Camel Research": a bibliometric analysis. Frontiers in Veterinary Science. 2023; 10. https://doi.org/10.3389/fvets.2023.1157667

Kandeel M, Morsy MA, Al Khodair KM and Alhojaily S. Meta-analysis of the efficacy of camel milk consumption for improving autism symptoms in children in randomised clinical trials. Open Veterinary Journal. 2024; 14:2441-2452. https://doi.org/10.5455/OVJ.2024.v14.i9.33

Kandeel M and Suganuma K. Broad-spectrum trypanocidal activity of the natural citrus flavanone glycosides hesperidin and neohesperidin dihydrochalcone. International Journal of Pharmacology. 2024; 20:785-793.

Kandeel M, Yamamoto M, Al-Taher A, Watanabe A, Oh-Hashi K, Park BK, Kwon HJ, Inoue JI and Al-Nazawi M. Small molecule inhibitors of middle east respiratory syndrome coronavirus fusion by targeting cavities on heptad repeat trimers. Biomolecules and Therapeutics. 2020b; 28:311-319. https://doi.org/10.4062/biomolther.2019.202

Kandeel M, Yamamoto M, Park BK, Al-Taher A, Watanabe A, Gohda J, Kawaguchi Y, Oh-Hashi K, Kwon HJ and Inoue JI. Discovery of new potent anti-mers cov fusion inhibitors. Frontiers in Pharmacology. 2021c; 12:685161. https://doi.org/10.3389/fphar.2021.685161

Kandeel M. Bibliometric analysis of camel research in china: research trends and thematic evolution. Egyptian Journal of Veterinary Sciences. 2024b:1-16.

Naji R, Kandeel M and Mahmoud M. A bibliometric analysis of six decades of camel research in North Africa: Trends, collaboration, and emerging themes. Open Veterinary Journal. 2024; 14:3505-3524. https://doi.org/10.5455/OVJ.2024.v14.i12.34

FORM IV

(See Rule 8)

1. Place of Publication	:	Camel Publishing House, 67, Gandhi Nagar (West), Near Lalgarh Palace, Bikaner-334001, Rajasthan
2. Periodicity of its publication	:	Triannual
3. Printer's Name	:	Tarun Kumar Gahlot
(Whether citizen of India)	:	Yes
Address	:	67, Gandhi Nagar (West), Near Lalgarh Palace, Bikaner-334001, Rajasthan
4. Publisher's Name	:	Tarun Kumar Gahlot
(Whether citizen of India)	:	Yes
Address	:	67, Gandhi Nagar (West), Near Lalgarh Palace, Bikaner-334001, Rajasthan
5. Editor's Name	:	Tarun Kumar Gahlot
(Whether citizen of India)	:	Yes
Address	:	67, Gandhi Nagar (West), Near Lalgarh Palace, Bikaner-334001, Rajasthan
6. Names and address of individual who own the newspaper and partners or share holders holding more than one per cent of total capital.	:	Tarun Kumar Gahlot 67, Gandhi Nagar (West), Near Lalgarh Palace, Bikaner-334001, Rajasthan

I, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Dated : 01.04.2026

Sd/-
Signature of Publisher