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Title

Clay and clay mineral supplementation in newborn calves: A protocol for a scoping review

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Publication Date

2023-06-07

Supplemental Material

<https://escholarship.org/uc/item/0x1044xv#supplemental>

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PRISMA-S Template (based on v1.0 retrieved from <https://osf.io/2ybwn/>)

(Literature and information being sought)

EX. represents examples for reference.

Databases and Interfaces Searched:

Database	Interface	Date Coverage	Date Searched
CAB Abstracts (included products: CAB ABSTRACTS, VetMed Resource, CABI Full Text, Global Health, Animal Health and Production Compendium (AHPG))	OVID	1973 to Present	17 October 2025 Bridge Search: 24 July 2026
Medline (Included products: Medline, in process citations, "ahead of print" citations, out-of-scope citations, journals indexing prior to medline inclusion, pre-1966 citations, PubMed Central, author manuscripts NIH funding, NCBI Bookshelf)	PubMed	1966 to Present	17 October 2025 Bridge Search: 24 July 2026
Scopus	Scopus	1996 to Present	17 October 2025 Bridge Search: 24 July 2026
Biosis	Web of Science	1926 to Present	17 October 2025 Bridge Search: 24 July 2026

Simultaneous Searches:

Not Applicable

Item 2: Other Online Resources (As Needed): Not planned at this time

Manual Searching (searching relevant journals Table of Contents):

Not Planned at this time

Citation Searching And Text Analysis:

Article Citation:
Fratrić, Natalija, et al. "The effect of a clinoptilolite based mineral adsorber on concentrations of immunoglobulin G in the serum of newborn calves fed different

amounts of colostrum." Acta Veterinaria-Beograd 55.1 (2005): 11-21.
Fratrić, Natalija, et al. "The effect of mineral adsorbent in calf diet colostrum on the levels of serum immunoglobulin G, protein and glucose." Acta Veterinaria-Beograd 57.2-3 (2007): 169-180.
Marc, Simona, et al. "Serum protein electrophoretic pattern in neonatal calves treated with clinoptilolite." Molecules 23.6 (2018): 1278.
Mohri, Mehrdad, Hesam A. Seifi, and F. Daraei. "Effects of short-term supplementation of clinoptilolite in colostrum and milk on hematology, serum proteins, performance, and health in neonatal dairy calves." Food and chemical toxicology 46.6 (2008): 2112-2117.
Mohri, Mehrdad, Hesam A. Seifi, and M. O. H. S. E. N. Maleki. "Effects of short-term supplementation of clinoptilolite in colostrum and milk on the concentration of some serum minerals in neonatal dairy calves." Biological trace element research 123 (2008): 116-123.

Process: Key articles were identified by Principal Investigator and keywords were mined by finding references in PubMed and CAB Abstracts. Keywords were collected and compared with keywords already utilized.

Contacts (Researchers contacted for additional information):

Not planned at this time.

Additional Methodologies Not Listed Above: Citation tracking ("snowball")

Process: Articles that were included for extraction after title/abstract and full text screening were utilized for forward and backward citation searching in Scopus.

Limits and Restrictions

Date and Time Period: 2000 to current

Language: English

Publication status: Peer reviewed

Species Included: Calves

Study Design: clinical trials

Database Subset:

Pre-specified cut-off or saturation point for results:

Other Restrictions:

Search Filters:

Database	Interface	Search Filters Applied
CAB Abstracts	OVID	Limit to English Language, year limits (2000 to current), and Article Document Type
Medline	PubMed	English Language and year limits (2000 to current)
Scopus	Scopus	English Language, year limits (2000 to current) and Article Document Type
Biosis	Web of Science	English Language, year limits (2000 to current) and Article Document Type

Full Search Strategy:

Search Database:CABDirect

Search ID	Terms (copy and paste)	Results
#1 calves	(("calves" or "calf diseases").de. OR (calf or calves).ab,ti.)	151,819
#2	("adsorbent*" or "clinoptilolite" or "Zeolite*" or "clinosorb" or "sepiolite" or	221,879

	"Halloysite" or "zeolite" or "clinoptilolite" or "sepiolite" or "smectite" or "diosmectite" or "montmorillonite" or "bentonite" or "kaolin" or "palygorskite" or "attapulgit" or "perlite" or "sepiolite" or "Clay" or "clay minerals" or "aluminum silicate" or "allophane" or "bauxite" or "beidellite" or "bentonite" or "chlorite" or "dickite" or "glauconite" or "halloysite" or "hectorite" or "illite" or "imogolite" or "intergrade minerals" or "interstratified minerals" or "kaolinite" or "montmorillonite" or "nontronite" or "palygorskite" or "sepiolite" or "smectites" or "vermiculite").ab,ti. OR ("clinoptilolite" or "adsorbents" or "clay minerals" or "allophane" or "bauxite" or "beidellite" or "bentonite" or "chlorite" or "dickite" or "glauconite" or "halloysite" or "hectorite" or "illite" or "imogolite" or "intergrade minerals" or "interstratified minerals" or "kaolinite" or "montmorillonite" or "nontronite" or "palygorskite" or "sepiolite" or "smectites" or "vermiculite").de.)	
#3	#1 AND #2	379
#4	<u>#3 AND Limit to English and articles</u>	136
#5	<u>#3 AND Limit to 2000 to current</u>	102
#6 Bridge search 24 Jul 2026	<u>#3 AND Limit to English and Articles and 2025 to current</u>	2
Copy and Paste OVID	((("adsorbent*" or "clinoptilolite" or "Zeolite*" or "clinosorb" or "sepiolite" or "Halloysite" or "zeolite" or "clinoptilolite" or "sepiolite" or "smectite" or "diosmectite" or "montmorillonite" or "bentonite" or "kaolin" or "palygorskite" or "attapulgit" or "perlite" or "sepiolite" or "Clay" or "clay minerals" or "aluminum silicate" or "allophane" or "bauxite" or "beidellite" or "bentonite" or "chlorite" or "dickite" or "glauconite" or "halloysite" or "hectorite" or "illite" or "imogolite" or "intergrade minerals" or "interstratified minerals" or "kaolinite" or "montmorillonite" or "nontronite" or "palygorskite" or "sepiolite" or "smectites" or "vermiculite").ab,ti. OR ("clinoptilolite" or "adsorbents" or "clay minerals" or "allophane" or "bauxite" or "beidellite" or "bentonite" or "chlorite" or "dickite" or "glauconite" or "halloysite" or "hectorite" or "illite" or "imogolite" or "intergrade minerals" or "interstratified minerals" or "kaolinite" or "montmorillonite" or "nontronite" or "palygorskite" or "sepiolite" or "smectites" or "vermiculite").de.) AND (("calves" or "calf diseases").de. OR (calf or calves).ab,ti.)	

Search Database: PubMed

Search ID	Terms (copy and paste)	Results
#1 species	"Calf"[tiab] OR "calves"[tiab]	74,598

#2	"Zeolites"[Mesh] OR "zeolite*" [tiab] OR "clinoptilolite" [Supplementary Concept] OR "clinoptilolite" [tiab] OR "Klinosorb" [tiab] OR "adsorbent" [tiab] OR "sepiolite" [tiab] OR "Calcium Aluminosilicate/therapeutic use" [Mesh] OR "adsorbent*" [tiab] OR "clinoptilolite" [tiab] OR "Zeolite*" [tiab] OR "clinosorb" [tiab] OR "sepiolite" [tiab] OR "Halloysite" [tiab] OR "smectite" [tiab] OR "diosmectite" [tiab] OR "montmorillonite" [tiab] OR "bentonite" [tiab] OR "kaolin" [tiab] OR "palygorskite" [tiab] OR "attapulgit" [tiab] OR "perlite" [tiab] OR "sepiolite" [tiab] OR "Clay" [tiab] OR "clay minerals" [tiab] OR "aluminum silicate" [tiab] OR "allophane" [tiab] OR "bauxite" [tiab] OR "beidellite" [tiab] OR "bentonite" [tiab] OR "chlorite" [tiab] OR "dickite" [tiab] OR "glauconite" [tiab] OR "halloysite" [tiab] OR "hectorite" [tiab] OR "illite" [tiab] OR "imogolite" [tiab] OR "intergrade minerals" [tiab] OR "interstratified minerals" [tiab] OR "kaolinite" [tiab] OR "montmorillonite" [tiab] OR "nontronite" [tiab] OR "palygorskite" [tiab] OR "sepiolite" [tiab] OR "smectites" [tiab] OR "vermiculite" [tiab]	84,886
#3	#1 AND #2	104
#4	#3 AND (english[Filter])	97
#5	#4 AND (2000:2025[pdat])	52
#6 Bridge Search 24 July 2026	#4 AND (2025:2026[pdat])	16
Copy and paste	((("Zeolites"[MeSH Terms] OR "zeolite*" [Title/Abstract] OR "clinoptilolite" [Supplementary Concept] OR "clinoptilolite" [Title/Abstract] OR "adsorbent" [Title/Abstract] OR "sepiolite" [Title/Abstract] OR "calcium aluminosilicate/therapeutic use" [MeSH Terms] OR "adsorbent*" [Title/Abstract] OR "clinoptilolite" [Title/Abstract] OR "zeolite*" [Title/Abstract] OR "sepiolite" [Title/Abstract] OR "Halloysite" [Title/Abstract] OR "smectite" [Title/Abstract] OR "diosmectite" [Title/Abstract] OR "montmorillonite" [Title/Abstract] OR	

	"bentonite"[Title/Abstract] OR "kaolin"[Title/Abstract] OR "palygorskite"[Title/Abstract] OR "attapulgate"[Title/Abstract] OR "perlite"[Title/Abstract] OR "sepiolite"[Title/Abstract] OR "Clay"[Title/Abstract] OR "clay minerals"[Title/Abstract] OR "aluminum silicate"[Title/Abstract] OR "allophane"[Title/Abstract] OR "bauxite"[Title/Abstract] OR "beidellite"[Title/Abstract] OR "bentonite"[Title/Abstract] OR "chlorite"[Title/Abstract] OR "dickite"[Title/Abstract] OR "glauconite"[Title/Abstract] OR "Halloysite"[Title/Abstract] OR "hectorite"[Title/Abstract] OR "illite"[Title/Abstract] OR "imogolite"[Title/Abstract] OR "kaolinite"[Title/Abstract] OR "montmorillonite"[Title/Abstract] OR "nontronite"[Title/Abstract] OR "palygorskite"[Title/Abstract] OR "sepiolite"[Title/Abstract] OR "smectites"[Title/Abstract] OR "vermiculite"[Title/Abstract]) AND ("Calf"[Title/Abstract] OR "calves"[Title/Abstract])) AND ((english[Filter]) AND (2000:2025[pdat]))	
Copy and paste bridge	(("Zeolites"[MeSH Terms] OR "zeolite*" [Title/Abstract] OR "clinoptilolite"[Supplementary Concept] OR "clinoptilolite"[Title/Abstract] OR "adsorbent"[Title/Abstract] OR "sepiolite"[Title/Abstract] OR "calcium aluminosilicate/therapeutic use"[MeSH Terms] OR "adsorbent*" [Title/Abstract] OR "clinoptilolite"[Title/Abstract] OR "zeolite*" [Title/Abstract] OR "sepiolite"[Title/Abstract] OR	

	"Halloysite"[Title/Abstract] OR "smectite"[Title/Abstract] OR "diosmectite"[Title/Abstract] OR "montmorillonite"[Title/Abstract] OR "bentonite"[Title/Abstract] OR "kaolin"[Title/Abstract] OR "palygorskite"[Title/Abstract] OR "attapulgitite"[Title/Abstract] OR "perlite"[Title/Abstract] OR "sepiolite"[Title/Abstract] OR "Clay"[Title/Abstract] OR "clay minerals"[Title/Abstract] OR "aluminum silicate"[Title/Abstract] OR "allophane"[Title/Abstract] OR "bauxite"[Title/Abstract] OR "beidellite"[Title/Abstract] OR "bentonite"[Title/Abstract] OR "chlorite"[Title/Abstract] OR "dickite"[Title/Abstract] OR "glauconite"[Title/Abstract] OR "Halloysite"[Title/Abstract] OR "hectorite"[Title/Abstract] OR "illite"[Title/Abstract] OR "imogolite"[Title/Abstract] OR "kaolinite"[Title/Abstract] OR "montmorillonite"[Title/Abstract] OR "nontronite"[Title/Abstract] OR "palygorskite"[Title/Abstract] OR "sepiolite"[Title/Abstract] OR "smectites"[Title/Abstract] OR "vermiculite"[Title/Abstract]) AND ("Calf"[Title/Abstract] OR "calves"[Title/Abstract]) AND "english"[Language]) AND (2025:2026[pdat])	
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Search Database: Scopus

Search ID	Terms (copy and paste)	Results
#1 species	TITLE-ABS-KEY ("calf" OR "calves")	120,334
#2 clay minerals	TITLE-ABS-KEY ("adsorbent*" OR "clinoptilolite" OR "Zeolite*" OR "clinosorb" OR "sepiolite" OR "Halloysite" OR	658,224

	"zeolite" OR "clinoptilolite" OR "sepiolite" OR "smectite" OR "diosmectite" OR "montmorillonite" OR "bentonite" OR "kaolin" OR "palygorskite" OR "attapulgit" OR "perlite" OR "sepiolite" OR "Clay" OR "clay minerals" OR "aluminum silicate" OR "allophane" OR "bauxite" OR "beidellite" OR "bentonite" OR "chlorite" OR "dickite" OR "glauconite" OR "halloysite" OR "hectorite" OR "illite" OR "imogolite" OR "intergrade minerals" OR "interstratified minerals" OR "kaolinite" OR "montmorillonite" OR "nontronite" OR "palygorskite" OR "sepiolite" OR "smectites" OR "vermiculite")	
#3	#1 AND #2	242
#4	#3 AND PUBYEAR > 1999 AND PUBYEAR < 2024 AND (LIMIT-TO (DOCTYPE,"ar")) AND (LIMIT-TO (LANGUAGE,"English"))	128
#5 Bridge Search 24 July 2026	#3 AND PUBYEAR >2024 AND PUBYEAR <2027 (LIMIT-TO (DOCTYPE,"ar")) AND (LIMIT-TO (LANGUAGE,"English"))	42
Copy and paste	(TITLE-ABS-KEY ("adsorbent*" OR "clinoptilolite" OR "Zeolite*" OR "clinosorb" OR "sepiolite" OR "Halloysite" OR "zeolite" OR "clinoptilolite" OR "sepiolite" OR "smectite" OR "diosmectite" OR "montmorillonite" OR "bentonite" OR "kaolin" OR "palygorskite" OR "attapulgit" OR "perlite" OR "sepiolite" OR "Clay" OR "clay minerals" OR "aluminum silicate" OR "allophane" OR "bauxite" OR "beidellite" OR "bentonite" OR "chlorite" OR "dickite" OR "glauconite" OR "halloysite" OR "hectorite" OR "illite" OR "imogolite" OR "intergrade minerals" OR "interstratified minerals" OR "kaolinite" OR "montmorillonite" OR "nontronite" OR "palygorskite" OR "sepiolite" OR "smectites" OR "vermiculite")) AND (TITLE-ABS-KEY ("calf" OR "calves")) AND PUBYEAR > 1999 AND PUBYEAR < 2026 AND (LIMIT-TO (LANGUAGE,"English")) AND (LIMIT-TO (DOCTYPE,"ar"))	
Copy and Paste Bridge Search	(TITLE-ABS-KEY ("adsorbent*" OR "clinoptilolite" OR "Zeolite*" OR "clinosorb" OR "sepiolite" OR "Halloysite" OR "zeolite" OR "clinoptilolite" OR "sepiolite" OR "smectite" OR "diosmectite" OR "montmorillonite" OR "bentonite" OR "kaolin" OR "palygorskite" OR "attapulgit" OR "perlite" OR "sepiolite" OR "Clay" OR "clay minerals" OR "aluminum silicate" OR "allophane" OR "bauxite" OR "beidellite" OR "bentonite" OR	

	"chlorite" OR "dickite" OR "glauconite" OR "halloysite" OR "hectorite" OR "illite" OR "imogolite" OR "intergrade minerals" OR "interstratified minerals" OR "kaolinite" OR "montmorillonite" OR "nontronite" OR "palygorskite" OR "sepiolite" OR "smectites" OR "vermiculite")) AND TITLE-ABS-KEY ("calf" OR "calves") AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND PUBYEAR > 2024 AND PUBYEAR < 2027	
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Search Database: Biosis

Search ID	Terms (copy and paste)	Results
#1 species	TS=(calf or calves)	115,385
#2 clay minerals	TS=("adsorbent*" OR "clinoptilolite" OR "Zeolite*" OR "clinosorb" OR "sepiolite" OR "Halloysite" OR "zeolite" OR "clinoptilolite" OR "sepiolite" OR "smectite" OR "diosmectite" OR "montmorillonite" OR "bentonite" OR "kaolin" OR "palygorskite" OR "attapulgit" OR "perlite" OR "sepiolite" OR "Clay" OR "clay minerals" OR "aluminum silicate" OR "allophane" OR "bauxite" OR "beidellite" OR "bentonite" OR "chlorite" OR "dickite" OR "glauconite" OR "halloysite" OR "hectorite" OR "illite" OR "imogolite" OR "intergrade minerals" OR "interstratified minerals" OR "kaolinite" OR "montmorillonite" OR "nontronite" OR "palygorskite" OR "sepiolite" OR "smectites" OR "vermiculite")	141,430
#3	#1 AND #2	249
#4	#3 AND English AND articles AND PY=(2000 OR 2001 OR 2002 OR 2003 OR 2004 OR 2005 OR 2006 OR 2007 OR 2008 OR 2009 OR 2010 OR 2011 OR 2012 OR 2013 OR 2014 OR 2015 OR 2016 OR 2017 OR 2018 OR 2019 OR 2020 OR 2021 OR 2022 OR 2023 OR 2024 OR 2025)	108
#5 Bridge 24 July 2026	#3 AND English AND articles AND PY=(2025 OR 2026 OR 2027)	7
Copy and paste	(TS=("adsorbent*" OR "clinoptilolite" OR "Zeolite*" OR "clinosorb" OR "sepiolite" OR "Halloysite" OR "zeolite" OR "clinoptilolite" OR "sepiolite" OR "smectite" OR "diosmectite" OR "montmorillonite" OR "bentonite" OR "kaolin" OR "palygorskite" OR "attapulgit" OR "perlite" OR "sepiolite" OR "Clay" OR "clay minerals" OR "aluminum silicate" OR "allophane" OR "bauxite" OR "beidellite" OR "bentonite" OR	

	"chlorite" OR "dickite" OR "glauconite" OR "halloysite" OR "hectorite" OR "illite" OR "imogolite" OR "intergrade minerals" OR "interstratified minerals" OR "kaolinite" OR "montmorillonite" OR "nontronite" OR "palygorskite" OR "sepiolite" OR "smectites" OR "vermiculite") AND TS=(calf or calves)) AND (DT=="ARTICLE") AND LA=="ENGLISH")) AND PY=(2000 OR 2001 OR 2002 OR 2003 OR 2004 OR 2005 OR 2006 OR 2007 OR 2008 OR 2009 OR 2010 OR 2011 OR 2012 OR 2013 OR 2014 OR 2015 OR 2016 OR 2017 OR 2018 OR 2019 OR 2020 OR 2021 OR 2022 OR 2023 OR 2024 OR 2025)	
Copy and paste Bridge	(TS=("adsorbent*" OR "clinoptilolite" OR "Zeolite*" OR "clinosorb" OR "sepiolite" OR "Halloysite" OR "zeolite" OR "clinoptilolite" OR "sepiolite" OR "smectite" OR "diosmectite" OR "montmorillonite" OR "bentonite" OR "kaolin" OR "palygorskite" OR "attapulgit" OR "perlite" OR "sepiolite" OR "Clay" OR "clay minerals" OR "aluminum silicate" OR "allophane" OR "bauxite" OR "beidellite" OR "bentonite" OR "chlorite" OR "dickite" OR "glauconite" OR "halloysite" OR "hectorite" OR "illite" OR "imogolite" OR "intergrade minerals" OR "interstratified minerals" OR "kaolinite" OR "montmorillonite" OR "nontronite" OR "palygorskite" OR "sepiolite" OR "smectites" OR "vermiculite") AND TS=(calf or calves)) AND (DT=="ARTICLE") AND LA=="ENGLISH")) AND PY=(2025 OR 2026 OR 2027)	

Updates: No updates at this time

Search Designers:

Information Specialists or Librarians involved in process were: EDF

Additional input from content experts in project: NSdR, CB-C & MH

Peer Review:

Librarian had their search strategy checked by content expert (MH) for sensitivity in results. Calibration studies that could be identified in CAB Abstracts (CAB Direct) and PubMed were used to validate search strategy.

Total Records	Total Records after deduplication	Deduplication software/methodology
390	218	Covidence

67 (New)/457 (Total)	28 (New)/246 (Total)	Covidence
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