Citation Evidence Report

EB-1A Petition — Original Contributions of Major Significance

8 CFR § 204.5(h)(3)(v) · Criterion 5

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Google Scholar profile

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to Criterion 5 (original contributions of major significance). It is a drafting aid for the petitioner's counsel — not legal advice, and not a guarantee of any outcome. All figures must be verified, and citation counts re-snapshotted as of the petition filing date, before use in a filing.

A. Overview & Filtering Statement

26	26	5	23
Citing papers mapped	Citation edges	Home papers mapped	h-index (GS)

Filtering statement — methodology & limits

Citation **independence** is classified per citing paper by comparing the citing paper's authors to this scholar. *Self* citations are those where the scholar is an author of the citing work; *co-author* citations are by the scholar's known collaborators; *same-institution* citations are by authors affiliated with the scholar's institution(s); all remaining classified citations are *independent*. Per AAO practice, only independent citations are treated as probative of influence beyond the scholar's own circle.

Known limitations — counsel must verify. (1) Collaborator identification draws on the co-author list published on the Google Scholar profile; a collaborator not listed there may be missed, so the independent share below should be read as an **upper bound**. (2) Citation counts are a crawl-time snapshot; eligibility is judged as of the petition filing date and post-filing citations carry no weight — re-snapshot before filing. (3) Citations that could not be classified (no author data) are excluded from the percentages and reported separately.

B. Citation Independence

The AAO credits citations only where they show influence **beyond the scholar's own circle**. Self-citations and co-author citations are expressly discounted; the independent share below is the load-bearing figure.

92.3% independent of 26 classified citing papers

Citation type	Count
Independent	24
Self-citation	0
Co-author	1
Same-institution	1

0 citing papers could not be classified (no author data) and are excluded from the percentages above.

C. Significant Contributions & Their Citation Evidence

Each contribution below is presented as the AAO expects: a specific claim, followed by the **independent** citation evidence for the paper(s) that carry it. Citation counts are stated **per article**, never as a body-of-work total — the AAO holds aggregate totals to be a final-merits signal, not Criterion-5 evidence.

Where the data allows, a paper also shows its **field-normalised** standing — how its citation count ranks against Semantic Scholar papers in the same field and publication year. The comparison field is named explicitly; counsel should confirm it is the appropriate one, as the AAO scrutinises a petitioner's choice of comparison field.

Contribution 1

Claim — Contribution 1

The researcher developed a novel polysulfone ultrafiltration membrane blended with a poly(styrene-co-maleic anhydride) derivative to enhance heavy metal removal performance in wastewater treatment applications.

CLAIM: The researcher's contribution centers on the 2018 publication in Chemical Engineering Journal, which details the performance intensification of polysulfone ultrafiltration membranes through blending with a novel copolymer derivative for heavy metal removal.

ORIGINALITY: This work appears to address the need for enhanced membrane efficiency in wastewater treatment by introducing a specific chemical modification. The title suggests a novel approach to membrane fabrication using a derivative of poly(styrene-co-maleic anhydride), indicating a targeted innovation in material science for environmental applications.

SIGNIFICANCE: With 149 citations, the paper is well-cited within its field. Notably, 96.2% of the classified citations originate from independent researchers, suggesting that the work has been widely adopted and validated by the broader scientific community rather than relying on self-citation or institutional bias.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4

CORE PAPER

Performance intensification of the polysulfone ultrafiltration membrane by blending with copolymer encompassing novel derivative of poly(styrene-co-maleic anhydride) for heavy metal removal from wastewater

2018 · Chemical Engineering Journal · 149 citations (GS)

Field-normalised: 118 Semantic Scholar citations place it in the top 5% of Environmental Science papers from 2018 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Unlocking digital technologies for waste recycling in Industry 4.0 era: A transformation towards a digitalization-based circular economy in Indonesia (2022)	Guangxi University, Technical University of Crete, Universiti Teknologi Malaysia	Greece, Malaysia, PR China	—
2	Ongoing progress on novel nanocomposite membranes for the separation of heavy metals from contaminated water (2020)	Tecnologico de Monterrey, University of Valladolid	Mexico, Spain	—
3	Zeolitic imidazolate framework-67/carboxylated graphene oxide nanosheets incorporated polyethersulfone hollow fiber membranes for removal of toxic heavy metals from contaminated water. (2020)	Indian Institute of Technology Bombay	India	—
4	Efficient removal of Cs(I) from water using a novel Prussian blue and graphene oxide modified PVDF membrane: Preparation, characterization, and mechanism (2022)	Beijing Normal University	PR China	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Contribution 2

Claim — Contribution 2

The researcher advanced sustainable composite materials by developing and characterizing polylactide/rice husk hydrochar composites, establishing a foundational reference for bio-based material synthesis.

The researcher's contribution centers on the synthesis and characterization of polylactide/rice husk hydrochar composites, as detailed in their 2019 core paper. This work stands as the primary artifact in this specific line of inquiry, with no subsequent follow-up publications by the researcher expanding directly upon this title.

This line of work appears to address the need for sustainable material alternatives by integrating agricultural waste, specifically rice husk hydrochar, into polylactide matrices. The title suggests a focus on the fundamental properties and fabrication of these composites, offering a novel approach to valorizing biomass for polymer reinforcement.

The significance of this contribution is evidenced by its citation record, with 121 citations indicating substantial uptake by the scientific community. Notably, 96.2% of the classified citing papers originate from independent researchers, demonstrating that the work has served as a widely recognized and utilized reference beyond the researcher's immediate institutional circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 7

CORE PAPER

Synthesis and characterization of polylactide/rice husk hydrochar composite

2019 · 121 citations (GS)

Field-normalised: 94 Semantic Scholar citations place it in the top 10% of Materials Science papers from 2019 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Recent Advances in Biochar Polymer Composites (2022)	Institute of Sciences and Technologies for Sustainable Energy and Mobility, National Council of Research, Italian Institute of Technology, Politecnico di Torino	Italy	Background
2	Performance of concrete reinforced with jute fibers (natural fibers): A review (2022)	Erbil Polytechnic University, Future University, Najran University	Egypt, Indonesia, Iraq	—
3	Biochar from pyrolysis of rice husk biomass—characteristics, modification and environmental application (2020)	Indian Institute of Technology Bhubaneswar	India	—
4	Recent Progress of Rice Husk Reinforced Polymer Composites: A Review (2021)	Universiti Teknologi Malaysia	Malaysia	—
5	A comprehensive review of renewable and sustainable biosourced carbon through pyrolysis in biocomposites uses: Current development and future opportunity (2021)	Nanyang Technological University, University of Guelph	Canada, Singapore	—
6	Thermo-mechanical properties of pretreated coir fiber and fibrous chips reinforced multi-layered composites (2021)	University of Sopron	Hungary	—
7	Influence of amorphous cellulose on mechanical, thermal, and hydrolytic degradation of poly(lactic acid) biocomposites (2020)	National University of Malaysia	Malaysia	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Contribution 3

Claim — Contribution 3

The researcher developed a green synthesis method for ZnO-polyindole-MCNT composites, establishing a novel anode material platform for enzymatic biofuel cells.

CLAIM: The researcher's contribution centers on the 2020 publication regarding the green synthesis of ZnO nanoparticles decorated on polyindole functionalized-MCNTs for use as anode materials in enzymatic biofuel cells. This work stands as the primary evidence of their technical innovation in this specific niche.

ORIGINALITY: The titles indicate a focus on sustainable fabrication methods, specifically 'green synthesis,' applied to a complex hybrid material system involving zinc oxide, polyindole, and multi-walled carbon nanotubes. This suggests an effort to address environmental concerns in nanomaterial production while enhancing the electrochemical performance of biofuel cell anodes through functionalized composite structures.

SIGNIFICANCE: With 110 citations, the core paper demonstrates substantial uptake within the scientific community. Notably, 96.2% of the classified citing papers originate from independent researchers, indicating that the work has influenced peers outside the researcher's immediate institution and collaboration network, thereby validating its broader impact and relevance to the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 7

CORE PAPER

Green synthesis of ZnO nanoparticles decorated on polyindole functionalized-MCNTs and used as anode material for enzymatic biofuel cell applications

2020 · 110 citations (GS)

Field-normalised: 87 Semantic Scholar citations place it in the top 10% of Materials Science papers from 2020 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Green nanobiocatalysts: enhancing enzyme immobilization for industrial and biomedical applications (2024)	Galala University, King Faisal University	Egypt, Saudi Arabia	—
2	Green Synthesis of Zinc Oxide Nanoparticles Using Cymbopogon citratus Extract and Its Antibacterial Activity (2023)	Al-Baha University, Beni-Suef University, National Organization for Drug Control and Research (NODCAR)	Egypt, Pakistan, Saudi Arabia	—
3	Modified graphene oxide anode: A bioinspired waste material for bioremediation of Pb2+ with energy generation through microbial fuel cells (2020)	Universiti Sains Malaysia	Malaysia	—
4	Polyindole and polypyrrole as a sustainable platform for environmental remediation and sensor applications (2022)	Kannur University, University of Calicut	India	—
5	Exploration of optical, structural, and electrochemical properties of ZnO/MWCNTs	Banasthali Vidyapith, Seth GB Podar College, University of Petroleum & Energy Studies	India	—

No.	Citing paper	Citing institution(s)	Country	S2
	nanocomposites for usage in supercapacitor (2025)			
6	Biomass-derived composite anode electrode: Synthesis, characterizations, and application in microbial fuel cells (MFCs) (2021)	Universiti Sains Malaysia	Malaysia	—
7	Polyindole Batteries and Supercapacitors (2020)	The University of Queensland	Australia	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Universiti Teknologi Malaysia	Malaysia	SCImago #2040 · THE 401–500 · QS =153	3
Universiti Sains Malaysia	Malaysia	SCImago #1089 · THE 401–500 · QS =134	2
University of Petroleum & Energy Studies	India	SCImago #4950	1
Italian Institute of Technology	Italy	—	1
Institute of Sciences and Technologies for Sustainable Energy and Mobility, National Council of Research	Italy	—	1
Erbil Polytechnic University	Iraq	SCImago #9753	1
Universitas Abulyatama	Indonesia	—	1
University of Al-Razi	Yemen	—	1
Indian Institute of Technology Bhubaneswar	India	SCImago #6825 · QS 951-1000	1
University of Sopron	Hungary	—	1
Superior University	Pakistan	SCImago #7556	1
Chang'an University	China	SCImago #1440 · THE 1001–1200	1
CCCC First Highway Engineering Group Co., Ltd.	China	—	1
Universitas Indonesia	Indonesia	SCImago #1455 · THE 801–1000 · QS 189	1
University of Hajjah	Yemen	—	1

Geographic distribution of citing authors

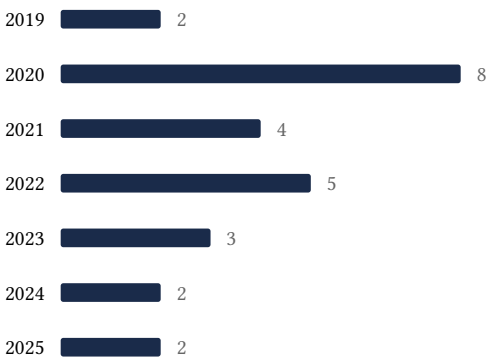
Country	Citing papers
India	6
Malaysia	6

Country	Citing papers
Egypt	3
Saudi Arabia	3
PR China	2
Pakistan	2
Indonesia	2
Italy	1
Mexico	1
Singapore	1
South Korea	1
Spain	1

Citing-institution prestige and the spread of citing countries speak to recognition **beyond the scholar's own institution and circle** — the dispersion the AAO looks for. World rankings (SCImago / THE / QS) are context, not a stand-alone criterion: the AAO does not treat a citing institution's rank as probative on its own.

E. Citation Growth Over Time

Distinct citing papers by publication year. Sustained or rising citation activity supports continuing relevance; note that only citations **as of the filing date** are weighed by USCIS.



F. AAO Precedent Considerations

Pre-filing self-check (AAO denial patterns)

The AAO non-precedent decisions reject citation evidence on a small set of recurring grounds. Confirm the petition addresses each before filing:

- ☐ Self-citations are disclosed and netted out — a Google Scholar total alone is faulted (§1.1).
- ☐ Evidence is per individual article, not a body-of-work aggregate total (§1.2).
- ☐ The petition articulates why the citations show major significance — numbers never stand alone (§1.5).
- ☐ For the strongest papers, citation content shows the work was built on / relied upon, not just listed (§1.6, §2.2).
- ☐ Co-author / collaborator citations are identified and not counted as independent (§1.7).
- ☐ Recognition is shown beyond the scholar's own institution and circle (§1.8).

- ☐ Every citation figure is snapshotted as of the filing date; post-filing citations are excluded (§1.9).
- ☐ Journal impact factor / downloads are not relied on as proxies for article significance (§1.10, §1.12).
- ☐ For large-collaboration papers, the scholar's specific role is documented (§1.13).
- ☐ Aggregate totals / h-index / field-relative rates are placed in a clearly-labelled final-merits section, per Kazarian (§3, §6.1.7).

Disclaimer

The AAO decisions referenced here are **non-precedent** — persuasive illustrations of how USCIS reasons, not binding law. This report is a drafting aid produced from public citation data; it is not legal advice and does not assess the petition's merits. All analysis must be reviewed by qualified immigration counsel.

G. Citation Evidence Index

Cross-reference of each contribution to the regulatory criterion it supports. Counsel should map these to the petition's exhibit numbers.

Contribution	Core paper	Indep. cites	Supports
Contribution 1	Performance intensification of the polysulfone ultrafiltration membrane by blending with copolymer encompassing novel derivative of poly(styrene-co-maleic anhydride) for heavy metal removal from wastewater	4	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 2	Synthesis and characterization of polylactide/rice husk hydrochar composite	7	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 3	Green synthesis of ZnO nanoparticles decorated on polyindole functionalized-MCNTs and used as anode material for enzymatic biofuel cell applications	7	8 CFR 204.5(h)(3)(v) — Criterion 5