LEMBAR HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW KARYA ILMIAH : JURNAL ILMIAH

Judul Karya Ilmiah (artike	El : Kinetics and morphological ch	aracteristics of struvite (MgNH4PO4.6H2O)				
under the influence of male	eic acid					
Nama Penulis	: Athanasius Priharyoto Bayuseno, Dyah Suci Perwitasari, Stefanus Muryanto,					
Mohammad Tauviqirrahma	an, Jamari Jamari					
Jumlah Penulis	: 5					
Status Pengusul	: Penulis pertama/penulis ke-1/Penulis korespondensi*					
Identitas Jurnal Ilmiah:	a. Nama Jurnal	: Heliyon				
	b. Nomor ISSN	: 2405-8440				
	c. Volume, Nomor, Bulan Tahun	: 6, Issue 3, March 2020, e03533				
	d. Penerbit	: Cell Press, Elsevier-ScienceDirect				
	e. DOI artikel (jika ada)	: /10.1016/j.heliyon.2020.e03533				
	f. Alamat web Jurnal	: https://www.cell.com/heliyon/home				
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Komponen	Nilai Maksimal	Nilai Rata- rata	
Yang Dinilai –	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi jurnal (10%)	4	4	4
b. Ruang lingkup dan kedalaman pembahasan (30%)	11	11	11
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	10	11	10,5
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	11	11	11
Total = (100%)	36	37	36,5
Nilai Pengusul = (60% x 36,5) = 21,	,9	•	• · · · · · · · · · · · · · · · · · · ·

Semarang, 12 Desember 2020

Reviewer 1

Rrof. Dr. Moh. Djaeni, S T., M.Eng. NIP. 197102071995121001 Unit Kerja : Teknik Kimia FT UNDIP

Reviewer 2 7/31/2021

DocuSigned by: UILUNI X 5D535F69BD8D411...

Prof. Dr. Ir. Han Ay Lie, M.Eng NIP. 195611091985032002 Unit Kerja : Teknik Sipil FT UNDIP

*Coret yang tidak perlu

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Hasil Penilaian Peer Review

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Komponen yang dinilai	Nilai Maksimal.	j Nilai Aknir yang 🛛		
	International/	Nasional	Nasional/	Diperoleh
	International	Terakreditasi	Nasional	
	Bereputasi*		terindeks	
Kelengkapan unsur isi artikel (10%)	4			4,0
Ruang lingkup dan kedalaman pembahasan	12			11,0
(30%)				
Kecukupan dan kemutakhiran data /informasi	12			10,0
dan metodologi (30%)				
Kelengkapan unsur dan kualitas terbitan/jurnal	12			11,0
(30%)				
Total = 100%	40			36,0
Nilai Pengusul		(60% x36,0)		21,6

1-Kelengkapan unsur isi artikel (10%)

Unsur isi artikel tentang innovative waste management yang merupakan salah satu bidang keahlian di Teknik Material/Kimia. Penulisan unsur isi jurnal yang meliputi: Title, Abstract, Introduction, Analysis, Results and Discussion, Conclusion, References telah sesuai dengan petunjuk penulisan yang ada sangat lengkap sesuai dengan guidelines jurnal. Semua grafik dan tabel yg disajikan dibahas (nilai: 4,0).

2-Ruang lingkup dan kedalaman pembahasan (30%)

Ruang lingkup penelitian ini adalah pengaruh asam maleat terhadap kecepatan pengendapan struvite dan morfologi produk yang dihasilkan. Kajian ini berkaitan dengan pembahasan mengenai pengolahan limbah dengan hasil struvite dengan kajian variabel penambahan jenis bahan yang berbeda. Pembahasan dilakukan cukup baik dan dalam, serta komprehensif dngan mensitasi referensi yang relevans sebagai benchmark. Artikel juga menyajikan umpan balik dari peneliti dan industri linkungan (nilai: 11,0).

3-Kecukupan dan kemutakhiran data /informasi dan metodologi (30%)

Artikel ini men-sitasi 44 referensi, dimana 23 diantaranya terbitan 10 tahun terakhir. Novelty cukup baik dari pengolahan limbah cair untuk pengambilan phosphate dengan penambahan additif asam serta kontrol morphologi. Metodologi disajikan secara sistimatis schingga mudah dipahami. (nilai: 10,0).

4-Kelengkapan unsur dan kualitas terbitan/jurnal (30%)

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Semarang, 2020 Reviewer 1

Prof. Dr. Moh. Djaeni, S.T., M.Eng. NIP : 197102071995121001 Unit Kerja : Departemen T.Kimia FT UNDIP Bidang Ilmu : Teknik Kimia

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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW

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a	International	al	Nasional	
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		ditasi		
Kelengkapan unsur isi artikel (10%)	4			4
Ruang lingkup dan kedalaman pembahasan	12			11
(30%)				
Kecukupan dan kemutakhiran data /informasi	12			11
dan metodologi (30%)				
Kelengkapan unsur dan kualitas terbitan/jurnal	12			11
(30%)				
Total = 100%	40			38
Nilai Pengusul		60%x38		22,8

1-Kelengkapan unsur isi artikel (10%)

Unsur isi artikel tentang innovative waste management yang merupakan salah bidang keahlian di Teknik Material/Kimia. Penulisan unsur isi jurnal yang meliputi: Title, Abstract, Introduction, Analysis, Results and Discussion, Conclusion, References telah sesuai dengan petunjuk penulisan yang ada sangat lengkap sesuai dengan guidelines jurnal. Semua grafik dan tabel yg disajikan dibahas. (nilai: 4).

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Ruang lingkup sangat sesuai dengan misi jurnal, yaitu materi sintesis bahan baru untuk bagi lingkungan dengan pokok bahasan pengendalian partikel presipitate. Isi materi sangat dalam baik dilihat dari segi teknik kristalisasi cairan/teknik stabilisai untuk segi pengolahan limbah. Pembahasan dilakukan secara sistimatis dan komprehensif. Data percobaan dan capaian penelitian disajikan dan dibahas dengan jelas dengan merujuk kepada referensi yang sesuai. Artikel juga menyajikan umpan balik dari peneliti dan industri pengolahan sampah (nilai: 11).

3-Kecukupan dan kemutakhiran data /informasi dan metodologi (30%)

Artikel ini men-sitasi 44 referensi, sebagian besar (23) terbitan 10 tahun terakhir. Novelty yg dikemukakan dalam makalah ini adalah aspek pengambilan phosphate dan pengolahan limbah cair (=sangat baik). Metodologi disajikan secara sistimatis sehingga mudah dipahami. (nilai: 11).

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Prof. Dr. Ir. Han Ay Lie, M.Eng NIP : 195611091985032002 Unit Kerja : Departemen T.Sipil, FT UNDIP Bidang Ilmu : Teknik Sipil dan Lingkungan

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Kinetics and morphological characteristics of struvite (MgNH₄PO₄.6H₂O) under the influence of maleic acid

<mark>Bayuseno A.P.^a ⊠</mark>, Perwitasari D.S.^b, Muryanto S.^c, Tauviqirrahman M.ª, Jamari J.ª Save all to author list

^a Department of Mechanical Engineering, Diponegoro University, Tembalang Campus, Semarang, 50275, Indonesia ^b Department of Chemical Engineering, Universitas Pembangunan National "Veteran" Jawa Timur, Surabaya, 60294, Indonesia

^c Department of Chemical Engineering, UNTAG University in Semarang, Bendhan Dhuwur Campus, Semarang, 50233, Indonesia

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Dr. Andrea Francesco Morabito

Professor Andrea Francesco Morabito received his Ph.D. in computer, biomedical, and telecommunications engineering from the University of Reggio Calabria. Italy, where he has also served as an assistant professor in electromagnetic fields since 2010. His research work is mainly focused on models and effective strategies for the solution of inverse problems, in particular, antenna synthesis, phase retrieval, and electromagnetic inverse scattering.



Prof. Mohammad Mehdi Rashidi

Professor Mohammad Mehdi Rashidi received his Ph.D. in mechanical engineering from Tarbiat Modares University, Iran. He is currently a professor of mechanical engineering at Tongji University in Shanghai, China, and previously taught at Bu-Ali University in Iran. Prof. Rashidi was named a 2018 highly cited researcher by Clarivate Analytics.

Environment

Meet the full editorial team for Heliyon Environment.



Prof. Frederic Coulon

Professor Frederic Coulon holds a chair in Environmental Chemistry & Microbiology at Cranfield University, **UK**. In addition to his position as section editor for *Heliyon Environment*, Prof. Coulon is an associate editor for *Environment International* and *Science of the Total Environment*. His professional interests include: soil and water chemistry; fate and transport of chemicals in surface and subsurface waters; water and wastewater treatment; soil and sediment treatment; hazardous waste site remediation; energy and environment; population and environment; and public communication of environmental science and engineering. His research achievements address international priorities under the umbrella of the Water-Soil-Waste nexus across sectors and scales. His work is premised on the understanding that environmental resources are inextricably intertwined and therefore there is a need of advancing a nexus approach to enable integrated and sustainable management of water, soil and waste systems.



Prof. Christian Sonne

Professor Christian Sonne, DVM, PhD, DScVetMed, Dipl. ECZM-EBVS, holds a professorship in veterinary ecotoxicology and wildlife medicine at Aarhaus University, Denmark. In addition to his position as section editor for *Heliyon Environment*, Prof. Sonne serves as special issues editor for *Environmental Pollution*. Since 1997, Prof. Sonne has specialized in the cross-field of biological effects from exposure to environmental chemicals, diseases and climate change, giving him a unique insight and profile working with a broad range of animals including predatory mammals, raptorial birds, sea birds, fish and humans. He has a broad insight and interest in internal and reproductive organs (histopathology, size, and morphology), skeletal system (bone density and morphology using e.g. DXA scanning), immune system (intra dermal testing of lymphocyte functioning, immune globulin production and cytokine and APP expressions), endocrine system (steroid and peptide hormones), PBPK modelling, blood biochemistry and infectious diseases (zoonosis). Prof. Sonne uses his global network to obtain interdisciplinary research results. Since 2015, he has applied his in-depth knowledge and understanding of biological processes to also include specific un-solved wildlife issues in Denmark (eider duck population declines) and health of raptors. Recently his innovative approaches have led to the first interactions with private industry focusing on natural resources developments and translational medicine within insulation, osteoporosis and metabolic syndrome. Prof. Sonne also specializes in surgical field implantations of intra-coelomic (abdominally) and subcutaneously satellite transmitters (PTTs) in various sea bird species and immobilization of deer spp.

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Prof. Lilian Mariutti

Prof. Lilian R. B. Mariutti received her aaster and doctorate degrees in food science from the School of Food Engineering - University of Campinas, Brazil, where she currently has a position as assistant professor. She was a researcher fellow in the Laboratory of Veterinary Drug Residues of the Brazilian Ministry of Agriculture, Livestock and Food Supply. Her research focuses on the identification and bioaccessibility of bioactive compounds and lipids and design of food ingredients from non-conventional sources.

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Dr. Chaisiri Angkurawaranon Public Health Chiang Mai University, Chiang Mai, Thailand

Chaisiri Angkurawaranon received his MD from Chiang Mai University and specialises in Family Medicine. He received a Masters in Medical Statistics and a PhD in Non-communicable Disease Epidemiology from the London School of Hygiene and Tropical Medicine. His research focuses on global health issues related to ageing and chronic conditions (both communicable and non-communicable) in primary care.



Dr. Nitika Pant Pai Infectious Disease McGill University, Montreal, Canada

Dr. Nitika Pant Pai is a tenured Associate Professor in the Department of Medicine at McGill University. Her global implementation research program for the past twenty years is focused on point-of-care diagnostics for HIV and other sexually transmitted blood borne infections; specifically the innovation, implementation and impact of digital strategies with rapid diagnostics and wearable solution. She develops integrated connected strategies with digital innovations, Bayesian diagnostics, artificial intelligence to plug health service delivery gaps in diagnostics in rapid diagnostics. She serves to inform domestic and global policy on point-of-care diagnostics.

Her research program is based in Canada, India and South Africa. She has led many diagnostic trials, cohort/cross sectional studies, meta-analyses, systematic reviews, modelling studies, to inform the gaps in policies to end the HIV epidemic. Her research has been supported by grants from the Canadian Institutes of Health Research, the FRQS, Grand Challenges Canada, Bill and Melinda Gates Foundation, National Institutes of Health, MRC SHIP, South African DST, IC-IMPACTS, Clinton Health Access Initiative, among others.

She has served on many technical working groups for national and international agencies: WHO, Foundation for Innovative Diagnostics, PSI, The Bill and Melinda Gates Foundation, ASLM, CDC, PHAC, REACH, among others. She has advised the office of the US Congress on multiplex testing. She has also contributed to HIV self-testing guidelines and policy guidance for HIV self-testing for the WHO. She serves the Strategic Advisory Board of the Foundation for Innovative Diagnostics and is on WHO's Roster of Digital Health Experts. She serves on the Editorial Moard for biomedical journals and regularly reviews for key international health agencies.

She is an elected member of the College of New Scholars, Artists & Scientists of the Royal Society of Canada.

Information Science

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Prof. Gregorio González Alcaide

Gregorio González-Alcaide (PhD) is a full Professor at the Department of the History of Science and Library & Information Sciences, at the University of Valencia.

Dr. González Alcaide teaching activities include Bibliometrics, skills in writing and academic communication and processes for evaluating research activities. He has also worked to raise awareness on the importance of academic honesty, to discourage behaviors like plagiarism and to foster respect for the ethical principles that must guide the research and publication process.

His main line of research has focused on the study of scientific collaboration by means of Bibliometrics and social network analysis as research methodologies. His studies have aimed to determine the extent of cooperative practices, structural properties, and the



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Abstract

between lightweight performance and production costs. In this paper, the boundaries of this

design trade-off and its implications on material selection, geometrical design a \square FEEDBACK \square

Abstract

Abstract

A sequential multi-component reaction of the nitroketene dithioacetals, cysteamine hydrochloride, isatin and different CH-acids is described. This efficient method provides new functionalized thiazolo pyridine-fused spirooxindoles and thiazolo pyridopyrimidine-fused spirooxindoles in good yields. In the case of using isatin derivatives (5-bromoisatin and 5chloroisatin), the reaction was carried out by using nano-SiO₂ (20 mol%) as an effective heterogeneous Lewis acid promoter. This type of reaction provides a range of skeletally different polycyclic spiro thiazole-based heterocyclic structures and represents attractive advantages including straightforward one-pot operation under the catalyst-free condition and simple workup procedures without using tedious purification procedure

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Abstract

Abstract

Bibliometric studies are important to understand changes and improvement opportunities in academia. This study compared bibliometric trends for two major sports medicine/arthroscopy journals, the *American Journal of Sports Medicine*® (*AJSM*®) and *Arthroscopy*® over the past 30 years. Trends over time and comparisons between both journals were noted for common bibliometric variables (number of authors, references, pages, citations, and corresponding author position) as well as author gender and continental origin. Appropriate statistical analyses were performed. A p < 0.001 was considered statistically significant. One representative year per decade was used. There were 814 manuscripts from *AJSM*® and 650 from *Arthroscopy*®. For *AJSM*® the number of manuscripts steadily increased from 86 in 1986 to 350 in 2016; for *Arthroscopy*® the number of

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Abstract

Abstract

The pathophysiology of type 2 diabetes mellitus (T2DM) is characterized by not only insulin resistance, but also the abnormal regulation of glucagon secretion, suggesting that antagonizing the glucagon-induced signaling pathway has therapeutic potential in the treatment of T2DM. Although various Kampo medicines (traditional herbal medicines) are often utilized to ameliorate the symptoms of T2DM, their effects on glucagon signaling have not yet been clarified. In the present study, we examined the effects of nine types of representative Kampo formulations prescribed for T2DM on glucagon-induced CREB activation in HEK293T cells stably expressing glucagon receptor (Gcgr) and a hepatic cell line HepG2. Among these Kampo medicines Rokumigan Hachimijiogan and Goshajinkigan significantly suppressed the

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Abstract

Abstract

This work reports a stirred-batch lab crystallization to examine the influence of maleic acid (HO₂CCHCHCO₂H), and temperatures (30 and 40 °C) on crystallization kinetics and morphology of struvite. The crystallization was followed by measuring the pH change up to 70 min. The pH decreased drastically for the first 5 min of the run, then started to tail off. It was found that the crystallization rate constants range from 1.608 to 6.534 per hour, which agrees with the most published value. Higher maleic acid concentrations resulted in greater growth retardation; the highest retardation was 74.21%, which was achieved for 30 °C with 20.00 ppm maleic acid. SEM imaging of the obtained precipitates showed irregular prismatic morphology, and the associated EDX confirmed that the precipitates were struvite (MoNH.PO4.6HaO). As

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Kinetics and morphological characteristics of struvite (MgNH₄PO₄.6H₂O) under the influence of maleic acid



Helivon

Athanasius Priharyoto Bayuseno^{a,*}, Dyah Suci Perwitasari^b, Stefanus Muryanto^c, Mohammad Tauviqirrahman^a, Jamari Jamari^a

^a Department of Mechanical Engineering, Diponegoro University, Tembalang Campus, Semarang 50275, Indonesia

^b Department of Chemical Engineering, Universitas Pembangunan National "Veteran" Jawa Timur, Surabaya 60294 Indonesia

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ARTICLE INFO

Keywords: Materials chemistry Physical chemistry Kinetics Maleic acid Struvite Struvite-(K)

ABSTRACT

This work reports a stirred-batch lab crystallization to examine the influence of maleic acid (HO₂CCHCHCO₂H), and temperatures (30 and 40 °C) on crystallization kinetics and morphology of struvite. The crystallization was followed by measuring the pH change up to 70 min. The pH decreased drastically for the first 5 min of the run, then started to tail off. It was found that the crystallization rate constants range from 1.608 to 6.534 per hour, which agrees with the most published value. Higher maleic acid concentrations resulted in greater growth retardation; the highest retardation was 74.21%, which was achieved for 30 °C with 20.00 ppm maleic acid. SEM imaging of the obtained precipitates showed irregular prismatic morphology, and the associated EDX confirmed that the precipitates were struvite (MgNH₄PO₄-6H₂O). As checked through XRD, the crystalline nature of the struvite was further confirmed, and that co-precipitation of struvite. Temperatures had less influence on struvite crystallization. At 40°C and 20.00 ppm the retardation of about 25%. Thus, the temperature effect is only 1/3 of the maleic acid effect. The current findings suggest that the presence of maleic acid can be used to elucidate the mechanism of crystallization as well as the crystalline phase transformation of struvite. In practical terms, maleic acid could be potential as a scale inhibitor.

1. Introduction

Scale formation of struvite (MgNH₄PO₄·6H₂O) is frequently found in wastewater treatment (WWT) plant facilities, e.g. the anaerobic treatment of piggery and poultry wastes and wine distillery effluents, since the wastes generally contain significant amounts of Mg²⁺, NH₄–N, and PO₄⁻², the forming components of struvite [1]. The scaling is especially prevalent in points where turbulent flows occur, rendering the solution to become alkaline due to the release of CO₂ from the solution [2, 3]. The struvite scale formation can be uncontrollable and massive which results in clogging pumps and other process equipment, blocking the piping system, and hence in reduction of energy and material transfer. In some cases the excessive scale growth may lead to the total breakdown of the processing facilities causing substantial financial losses.

On the other hand, since ammonium and phosphate ions are essential for plant growth, struvite is considered potential as a fertilizer. In fact, recovery of Mg^{2+} , NH_4-N , and PO_4^{-2} from wastewater as struvite has been an area of promising enterprise since the crystals produced are regarded as superior due to their slow-release nature [4, 5, 6]. Another important area of struvite research is the presence of this phosphate material as one of the major components of infectious urinary stones [7, 8]. This paper, however, discusses an investigation on struvite crystallization in an attempt to alleviate the burden of scaling problem encountered by many industries and WWT services. Struvite precipitation, or struvite crystallization, as the term interchangeably used, has been widely practiced for the removal of environmentally harmful ammonium nitrogen (NH₄–N) and phosphorus (PO₄) from WWT, since it is highly efficient, simple and environmentally sustainable [9, 10].

Scale formation of struvite is initiated by crystallization, a process which is significantly subject to a number of physical-chemical parameters. Among these parameters are pH level of the solution [1, 11, 12], and the presence of foreign ions [2, 3, 12].

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Research article

From aviation to automotive - a study on material selection and its implication on cost and weight efficient structural composite and sandwich designs



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ABSTRACT

The design of a composite material structure is often challenging as it is driven by the trade-off between lightweight performance and production costs. In this paper, the boundaries of this design trade-off and its implications on material selection, geometrical design and manufacturability are analysed for a number of design strategies and composite material systems. The analysis is founded on a methodology that couples weight-optimization and technical cost modelling through an application-bound design cost. Each design strategy is evaluated for three levels of bending and torsional stiffness. The resulting stiffness-versus cost-range together constructs the design envelope and provides guidelines on the suitability and improvement potential of each case. Design strategies researched include monolithic, u-beam-, sandwich-insert- and sandwich-stiffened plates. Considered material systems include carbon-, glass, recycled carbon-, lignin- and hemp-fibre reinforced composite materials are all shown to reduce costs but at lower stiffness performance. Ultimately, the case study demonstrates the importance of early structural design trade-off studies and material selection and justifies introducing novel fibre systems in low-cost applications of moderate stiffness levels.

1. Introduction

Environmental demands and fuel economy are key driving forces behind the use of lightweight design and advanced lightweight material systems in the aeronautical and automotive sector [1, 2, 3]. Advanced composite materials, such as carbon-fibre reinforced polymers (CFRP), combine high specific stiffness with design flexibility and therefore have particularly high weight-reduction potential. In aerospace applications the use of CFRP-materials can result in lifetime CO_2 -reductions of 14-20% [4], well on the way to reach future emission targets [5]. Similarly, lightweight design and advanced composite materials have promising environmental benefits for fossil-fuel-based automotive applications [6] as well as pure electric vehicles, where the reduced structure weight counterbalances added battery weight [7].

However, as fibre-reinforced composite materials are complex systems, consisting of tailored, load-carrying, fibre layers and connective matrix, their production and design are often challenging, slow and costly [8, 9]. The material cost of the reinforcing fibres in themselves is also often an issue. Carbon fibre for example, are available at high prices of 20-60 \in /kg [10] depending on stiffness grade. Furthermore, production cost studies have shown that material cost becomes a dominating cost driver when producing CFRP components either at high production rates or in large structural adaptions [8, 9, 11, 12].

Some of the production challenges have been addressed by recent manufacturing technology advancements such as additive manufacturing (AM), or 3D-printing, [13, 14, 15], out-of-autoclave curing [16, 17] and 3D-weaving [18, 19]; but slow production rates and high costs of composite production persist. This is especially true in applications that demand excellent structural performance, where quality requirements and validations often still limits industry to certified traditional methods. Apart from improving available manufacturing technologies, productions costs and involved material costs can be addressed through developing and implementing smart geometry design focused on using the expensive material system efficiently. In composite structures,

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Research article

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Bibliometric and authorship trends over a 30 year publication history in two representative US sports medicine journals



Helivon

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ABSTRACT

Bibliometric studies are important to understand changes and improvement opportunities in academia. This study compared bibliometric trends for two major sports medicine/arthroscopy journals, the American Journal of Sports Medicine® (AJSM®) and Arthroscopy® over the past 30 years. Trends over time and comparisons between both journals were noted for common bibliometric variables (number of authors, references, pages, citations, and corresponding author position) as well as author gender and continental origin. Appropriate statistical analyses were performed. A p < 0.001 was considered statistically significant. One representative year per decade was used. There were 814 manuscripts from AJSM® and 650 from Arthroscopy®. For AJSM® the number of manuscripts steadily increased from 86 in 1986 to 350 in 2016; for Arthroscopy® the number of manuscripts increased from 73 in 1985/1986, to 267 in 2006, but then dropped to 229 in 2016. There were significant increases in all bibliometric variables, except for the number of citations which decreased in Arthroscopy®. There were significant differences in manuscript region of origin by journal (p = 0.000002). Arthroscopy® had a greater percentage of manuscripts from Asia than AJSM® (19.3% vs 11.5%) while AJSM® had a greater percentage from North America (70.3% vs 59.2%); both journals had similar percentages from Europe (18.2% for AJSM® and 21.6% for Arthroscopy®). For AJSM® the average percentage of female first authors was 13.3%, increasing from 4.7% in 1986 to 19.3% in 2016; the average percentage of female corresponding authors was 7.3%. For Arthroscopy®, the average percentage of female first authors was 8.1%, increasing from 2.8% in 1985/1986 to 15.7% in 2016 (p =0.00007). In conclusion, AJSM® and Arthroscopy® showed an increase in most variables analyzed. Although Arthroscopy® is climbing at a higher rate than AJSM® for female authors, AJSM® has an overall greater percentage of female authors.

1. Introduction

Bibliometric studies provide valuable information regarding past, current, and future directions in a field. Such data are helpful for mentors in counseling trainees and junior faculty. In the biomedical field, they are one way of understanding the impact of gender on research and how to overcome the gender gap/bias [1]. Bibliometric studies give insight into both successes, as well as challenges, that still exist in academic medicine. As the majority of research-driven manuscripts are products from academic institutions rather than private medical practices, it is important to also examine trends within academic medicine.

One of the successes in academic medicine is increasing collaboration within the scientific community. The advent of technology and the internet allows researchers to more easily collaborate with others from different institutions and countries, resulting in research that is both beneficial to patients as well as to the researchers regarding career advancement [2, 3, 4].

One of the challenges in academic medicine is gender distribution within certain specialties. Medicine has traditionally been a male

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