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Utilization of Green Tea Extract on Anti-aging Cream with Butylated Hydroxytoluene (BHT) and Tertiary Butylhydroquinone (TBHQ): Physical Stability Aspect

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Abstract. Green tea (*Camellia sinensis* (L.) Kuntze) is a potent natural ingredient with flavonoid content that can be used as an antioxidant and anti-aging for skincare products. The formula containing green tea extract is usually formulated as oil in water emulsion or cream. The active components of green tea are catechins which are characterized as less stable against oxidation. Therefore, it is needed to add other antioxidants such as ButylatedHydroxy Toluene (BHT) and Tertiary–Butyl Hydroquinone (TBHQ) to protect the product from degradation. The aim of this study was to obtain a physically stable antiaging cream formula. Each formula was tested for physical stability by measuring several variables including organoleptic, pH, relative density, viscosity, and flow properties, as well as droplet size. Accelerated stability testing is carried out for 3 mo at 40 °C and 75 % relative humidity. The results found that cream with the BHT formula is more stable than the TBHQ formula in terms of the parameters of density and droplet size. While the TBHQ formula only gave better stability in pH, the other variables from both formulas remain stable in 3 mo. It can be concluded that the green tea extract cream with BHT antioxidant is more stable than the TBHQ.

Keywords: *Camellia sinensis* (L.) Kuntze, Environmental friendly technology, flavonoid, natural antioxidant, prevent premature aging

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1 Introduction

Antioxidant compounds can be obtained from synthetic chemicals or from natural ingredients [1]. Antioxidant compounds isolated from natural sources usually come from plants. These natural plant antioxidant compounds are generally phenolic or polyphenolic compounds that can be present in the form of flavonoids including flavones, flavonols, isoflavones, catechins, and chalcones [2–4]. One of the natural ingredients that can be a source of natural antioxidants and rich in catechins is green tea (*Camellia sinensis* (L.) Kuntze) [5].

Antioxidants or anti-aging compounds are often used to prevent premature aging. Aging is a natural degeneration process that cannot be avoided and occurs constantly. When entering their forties, a person will experience aging shown by changes in their skin. Beginning with wrinkles and dryness followed by skin pigmentation, darkening the skin color. However, due to sun exposure and an unhealthy lifestyle, people may experience premature aging. Premature aging can take the form of wrinkles, dullness, and even the presence of melasma or blackish brown patches which, if not treated immediately, can cause black spots that generally occur in women [6]. Antioxidants can inhibit free radicals generated from sun exposure, especially UV A radiation with a wavelength of 320 nm to 400 nm, which is the main cause of premature aging (photoaging) [7]. Generally, antioxidants are defined as compounds that can delay, slow down and prevent the oxidation process.

To provide an anti-aging cream formula containing green tea extract, several formulas with catechin as the active ingredient has been produced [8], however because of the instability of a natural compound against oxidation, it is necessary to add antioxidants to protect the product from oxidation and provide better physical stability [9]. Two oil in water cream containing green tea extract formulations with the addition of Butylated Hydroxy Toluene (BHT) and Tertiary Butyl Hydroquinone (TBHQ) have been developed. The physical stability of cream containing green tea extract with BHT has increased compared to those without BHT, although the improvement was not very encouraging [10]. To further improve the physical stability, we have investigated the stability of green tea cream with another antioxidant that was reported to be a better antioxidant, namely Tertiary–Butyl Hydroquinone (TBHQ) [11]. In this study, the authors compared the physical stability of oil in water cream preparations containing green tea extract with TBHQ and BHT. The purpose of this study was to obtain a physically stable anti-aging cream containing green tea extracts that are used to treat premature aging.

The physical stability of cream preparations containing green tea extract was tested using the accelerated stability test method [12]. The variables observed and measured in this study are organoleptic, degree of acidity (pH), relative density, viscosity, and flow properties, as well as the droplet size of cream preparations. All formulated creams were stored in a climatic chamber with a temperature of 40 °C, 75 % relative humidity for 3 mo [13, 14]. Observations and measurements in triplicate were carried out immediately after preparations has been manufactured [t_0], and every 14 d for 3 mo.

2 Methods

2.1 Materials and instruments

The materials used in this study were green tea extract, stearic acid, cetyl alcohol, isopropyl palmitate, sepicid, HB, sorbitan monostearate, sorbitol solution (70 %), polysorbate 60,

oleum olivarum, glycerin, spiegel, squalene, TBHQ, BHT, and aqua demineralization. The instruments used in this study are climatic chamber KBF 240, Cyberscan 510 pH–meter, Brookfield Cone and Plate AT 71362 viscometer, picnometer, Sartorius analytical balance, glass instruments, 99017420002 series optical microscope, 40 Zeiss Axioscope photomicroscope, and water bath.

2.2 Formulation methods and stability testing

Cream preparations are manufactured according to the formula and composition as shown in Table 1. Each formula is made on a laboratory scale weighing 20 g in two replications and each replication is subjected to a physical stability test with five test parameters and three observations. Physical stability testing using the accelerated stability test method begins by inserting the cream in its container into a climatic chamber which has been set at 40 °C and 75 % relative humidity. Then the physical characteristics are tested at each point of observation for 3 mo. The physical properties of the tested preparations include organoleptic, pH, relative density, viscosity, and flow properties, as well as droplet size.

Table 1. Formula composition and weighing table of anti-aging cream preparation containing green tea extract and TBHQ or BHT

Materials	Amount	Formula A (TBHQ)	Formula B (BHT)
Green tea extract	0.25 %	50 mg	50 mg
Stearic acid	6 %	1.2 g	1.2 g
Cetyl alcohol	1 %	200 mg	200 mg
Isopropyl palmitate	1 %	200 mg	200 mg
Sepicid HB	0,15 %	30 mg	30 mg
Sorbitan monostearate	4 %	800 mg	800 mg
Sorbitol solution 70 %	3 %	600 mg	600 mg
Polysorbate 80	3 %	600 mg	600 mg
Oleum olivarum	6 %	1.2 g	1.2 g
Glycerol	1.5 %	300 mg	300 mg
Sepigel	1 %	200 mg	200 mg
Squalane	5 %	1 g	1 g
TBHQ	0.05 %	10 mg	–
BHT	0.05 %	–	10 mg
Aquadem	68.05 %	13.61 g	13.61

2.3 Data analysis

The data of 3 mo observation on the pH, relative density, viscosity, and droplet size of the preparations were then analyzed using the one–way ANOVA, while the organoleptic data and flow properties were analyzed descriptively [15, 16].

3 Results and discussion

An amount of 140 g of anti-aging cream containing green tea extract is prepared and then packed with a weight of 20 g each into seven plastic pots. Two types of formulas are distinguished in their antioxidant additives [8], the first formula with BHT and the second formula with TBHQ. Each formula was made in two replications. The specifications for the preparation of oil in water cream (emulsion), no phase separation, possess a light

moisturizing cream odor, white in color, pH of 4.85, and a 1.0 g mL^{-1} density.

3.1 Organoleptic

Organoleptic observations of anti-aging cream preparations containing green tea extract consisted of form, smell, and color. Visually, it appears that all anti-aging cream preparations both in the TBHQ and BHT formulas from week 0 wk to 12 wk do not change in form, that is, they remain in the form of cream or oil emulsion in water and there is no visible phase separation. After being observed through the sense of smell, it was found that all anti-aging cream preparations in the BHT and TBHQ formulas from 0 wk to 12 wk had no change in odor. Visually, there is a color change in the anti-aging cream preparations from 0 wk to 12 wk. The BHT formula at 0 wk to 6 wk is white, while at 8 wk to 12 wk it changes color to beige. Meanwhile, the color change was even faster in the TBHQ formula. During 4 wk to 12 wk the color changes to beige.

3.2 Emulsion Type

The success of patchouli oil extraction from *Pogostemon cablin* Benth. leaves based on patchouli alcohol (PA) quality is influenced by fertilization factors and cultivation conditions, harvest time, fermentation, drying and scaling down, and extraction methods. The water–bubble distillation (WBD) and microwave-assisted hydrodistillation (MHD) are efficient methods for extracting good quality patchouli oil from *Pogostemon cablin* Benth. leaves.

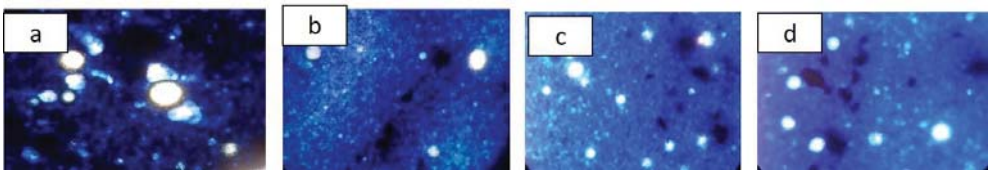

Fig. 1. Emulsion type of anti–aging cream preparation with TBHQ formula during week 0 (a), 4, (b), 8 (c), and 12 (d)

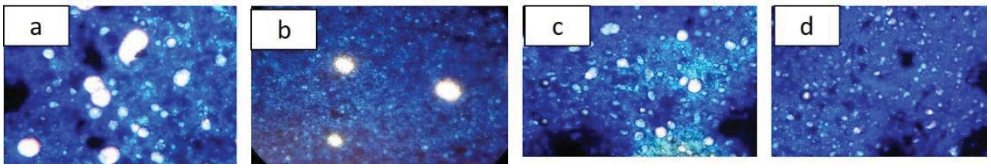

Fig. 2. Emulsion type of anti–aging cream preparation with BHT formula during week 0 (a), 4, (b), 8 (c), and 12 (d)

3.3 pH

The pH measurement of anti-aging cream preparations containing green tea extract from 0 to 12 wk carried out using a Cyberscan 510 pH meter. Resulting in a profile as shown in Figure 3, which indicates that the pH of both creams are relatively stable during 12 wk of storage.

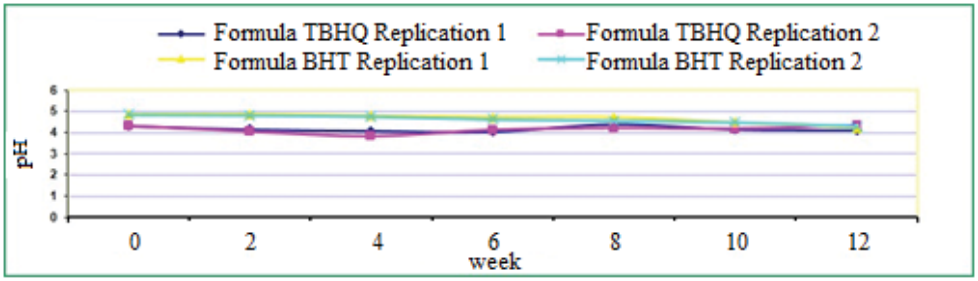

Fig. 3. pH value vs storage time profile

From an ANOVA test for the BHT and TBHQ formulas, a significance value of 0.000 was obtained, after being compared with the α value of 0.05. It can be concluded that the significance is < α, meaning H_1 was accepted. Therefore, there was at least one different variant in the seven samples (observation time), hence the Tamhane test was carried out. The results of the analysis of the significance of the pH data on the formula with BHT showed that there was a significant difference in the pH of the cream preparations when first made with the cream after being stored for the specified observation time. The same result was observed for the TBHQ formula, it was found that there was a significant difference in pH at 0 wk and 12 wk. The decrease in pH was possibly due to the hydrolysis action that occurs to the cream materials which caused an increase in the concentration of H^+ ions [17].

3.4 Relative density

The results of relative density observation from cream preparations carried out at 0 wk to 12 wk were reported as the storage time vs relative density profile of the cream preparations that can be seen in Figure 4.

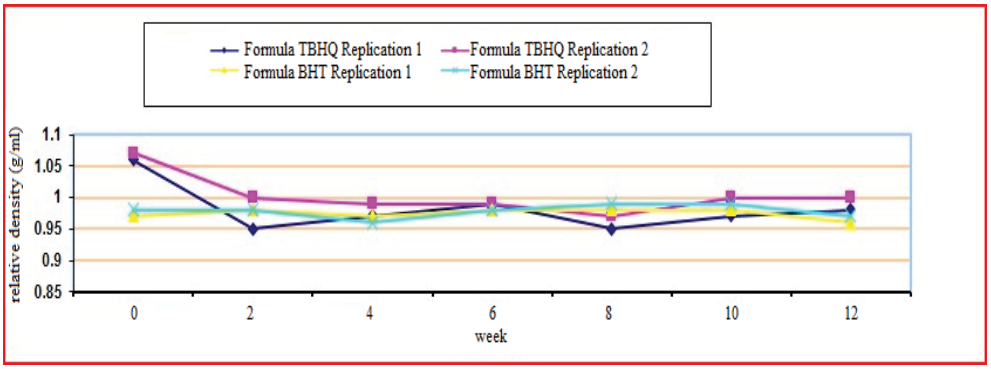

Fig. 4. Relative density vs storage time profile

From the ANOVA test for the BHT and TBHQ formulas, a significance value of 0.000 was obtained, after being compared with the α value of 0.05. It was concluded that the significance < α, meaning H1was accepted. Therefore, there is at least one different variant in the seven samples (observation time), hence the Tamhane test is carried out. From the data significance result of the BHT formula's relative density, we found that there was a significant difference of relative density between 4 wk and 6 wk; 4 wk and 8 wk; 6 wk and 12 wk.

Likewise, from the data significance result of the TBHQ formula's relative density,

there was a significant difference in the cream preparations when they were initially prepared with the ones that had been stored until the designated observation time. The reduction in relative density is presumed due to the release of oil during initial weighing or it could also be from a decrease in the concentration of surfactants or inaccurate selection of surfactants that have not been able to function to reduce the interfacial tension properly, causing the separation of the oil and water phases in the preparation. Another possibility that could occur is water evaporation caused by the storage processing at relatively high temperatures [18].

3.5 Viscosity and flow properties

The viscosity and flow properties of anti-aging cream preparations containing green tea extract were observed at 0 wk to 12 wk using Brookfield Cone and Plate Digital Viscometer AT 71362. CPE 41 spindles were used at a speed of 0.3 rpm. Table 2. showed the viscosity of the BHT formula and Table 3. shows the viscosity of TBHQ formula. The storage time vs viscosity profile of the preparation can be seen in Figure 5.

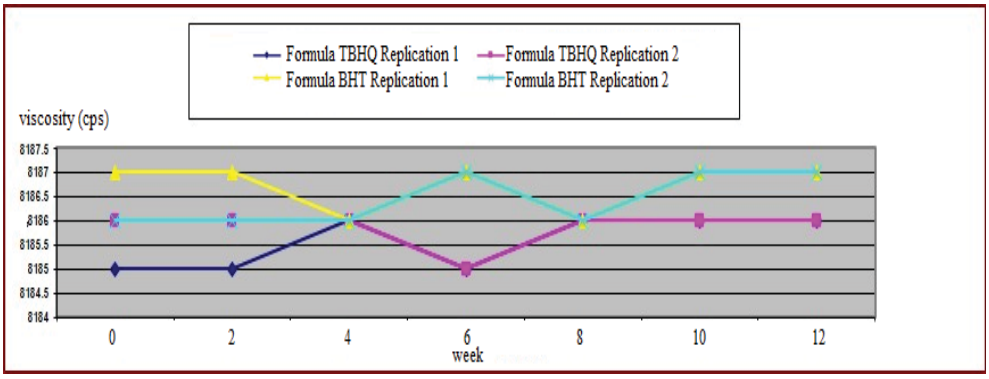

Fig. 5. Flow properties profile of anti-aging cream (viscosity vs storage time)

Table 2. The viscosity of anti-aging cream preparation containing green tea extract and BHT

Storage Week	Formula BHT							
	Replication 1				Replication 2			
	1	2	3	Mean	1	2	3	Mean
0	8 183	8 187	8 186	8 185	8 184	8 186	8 186	8 186
2	8 183	8 186	8 187	8 185	8 185	8 186	8 186	8 186
4	8 186	8 186	8 187	8 186	8 185	8 185	8 186	8 186
6	8 183	8 185	8 186	8 185	8 183	8 186	8 187	8 185
8	8 187	8 186	8 186	8 186	8 187	8 186	8 186	8 186
10	8 187	8 187	8 185	8 186	8 186	8 186	8 187	8 186
12	8 187	8 186	8 187	8 186	8 186	8 186	8 186	8 186

Table 3. The viscosity of anti-aging cream preparation containing green tea extract and TBHQ

Storage Week	Formula TBHQ							
	Replication 1				Replication 2			
	1	2	3	Mean	1	2	3	Mean
0	8 187	8 187	8 187	8 187	8 186	8 186	8 186	8 186

(Continued on next page)

Table 3. Continued

Storage Week	Formula TBHQ							
	Replication 1				Replication 2			
	1	2	3	Mean	1	2	3	Mean
2	8 187	8 187	8 187	8 187	8 185	8 186	8 186	8 186
4	8 186	8 186	8 186	8 186	8 186	8 186	8 186	8 186
6	8 187	8 187	8 187	8 187	8 188	8 187	8 186	8 187
8	8 186	8 186	8 187	8 186	8 186	8 187	8 186	8 186
10	8 187	8 187	8 187	8 187	8 186	8 187	8 187	8 187
12	8 187	8 187	8 187	8 187	8 187	8 186	8 187	8 187

The observation result for the flow properties of cream preparation scarried out at 0 wk to 12 wk, based on the viscosity measurement data yielded a stable viscosity as shown in Figure 5. Assumed from data analysis with the addition of the Tamhane test, viscosity data for both BHT and TBHQ formulas hold no significant difference for each observed time, from 0 wk to 12 wk. The flow properties of the cream preparations are observed as pseudoplastic [18].

3.6 Droplet size

The droplet size (dvs) observation results of cream preparations based on micromeritic data can be seen in Table 4 for the BHT formula and Table 5 for the TBHQ formula whereas the storage time vs droplet size profile can be seen in Figure 6.

Table 4. The droplet size of anti-aging cream preparation containing green tea extract and BHT during 0 wk to 12 wk

Storage Week	Formula BHT							
	Replication 1				Replication 2			
	1	2	3	Mean	1	2	3	Mean
0	6.75	3.05	4.38	4.73	2.17	2.98	2.92	2.69
2	4.03	2.16	2.54	2.91	1.9	2.17	2.1	2.06
4	2	1.67	1.88	1.85	1.2	2.16	2.07	1.81
6	2.43	4.76	4.09	3.76	1.57	2.07	1.97	1.87
8	2.99	2.31	2.64	2.65	1.3	2.07	1.82	1.73
10	3.59	1.67	3.54	2.93	1.6	2.09	1.68	1.79
12	2.63	2.21	1.95	2.26	1.71	2	1.84	1.85

Table 5. The droplet size of anti–aging cream preparation containing green tea extract and TBHQ during 0 wk to 12 wk

Storage Week	Formula TBHQ							
	Replication 1				Replication 2			
	1	2	3	Mean	1	2	3	Mean
0	3.33	3.07	3.18	3.19	3.77	2.52	2.9	3.06
2	2.09	2.39	2.53	2.34	2.54	2.41	2.57	2.51
4	2.66	2.65	2.88	2.73	3.09	2.85	2.95	2.96
6	2.85	2.84	2.87	2.85	2.8	2.99	3.07	2.95
8	2.54	2.49	2.71	2.58	3.22	2.52	3.3	3.01
10	3.62	3.31	3.18	3.37	2.68	2.03	2.03	2.25
12	2.85	2.78	2.82	2.82	3.38	2.3	2.7	2.79

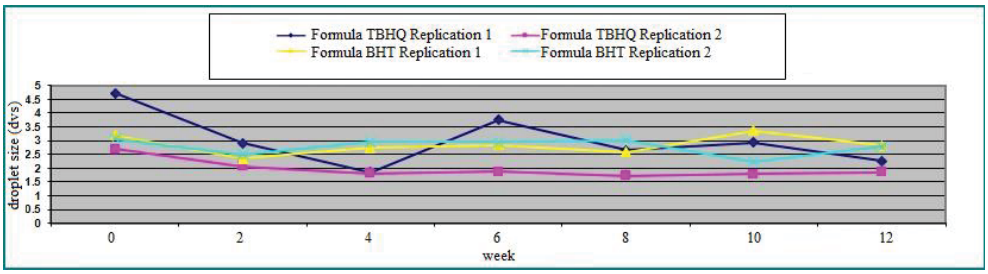

Fig. 6. Droplet size vs storage time profile

A significance value of 0.030 was obtained through the one–Sample Kolmogorov–Smirnov Test carried out on the BHT formula. That value was then compared with the α value of 0.05, which showed that the test result's significance was < α, meaning H_1 was accepted. Therefore the droplet size was not normally distributed. Where as for the TBHQ formula, a significance value of 0.939 was obtained, after being compared with the α value of 0.05, the result was that the significance is > α, meaning H_0 was accepted, showing that the droplet size was normally distributed. The histogram chart for the droplet size distribution is shown in Figure 7a and 7b for BHT and TBHQ formula respectively.

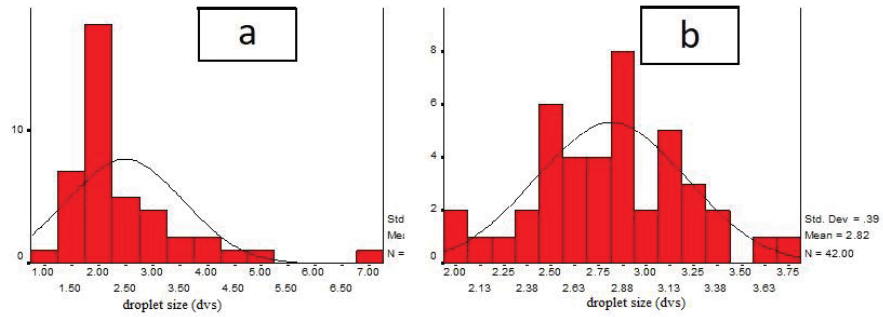

Fig. 7. Droplet Size Histogram of Anti–aging Cream for Formula BHT (a) and Formula TBHQ (b)

The droplet size data significance analysis result of the BHT formula showed that there was no significant difference at any time. As for the data on the droplet size of the TBHQ formula, it was found that there were significant differences between (2 wk and 4 wk) and (2 wk and 6 wk). Based on the results of statistical data analysis using the one–way ANOVA test, it was found that there were differences in particle size for the TBHQ formula during 0 wk and 12 wk, which is probably due to the increased solubility during the storage of the preparation in the climatic chamber [18].

4 Conclusion and suggestions

Based on the results of the study, green tea anti-aging cream with the BHT formula is more stable than the TBHQ formula in terms of relative density and droplet size. While the TBHQ formula is better in terms of pH stability. For other parameters, both formulas show stable results. It can be concluded that anti-aging cream preparations containing a combination of green tea extract and BHT are more stable than anti-aging creams containing a combination of green tea extract and TBHQ. For future studies, it is suggested to use a combination of BHT and TBHQ to obtain anti-aging creams that are more stable against the oxidation process.

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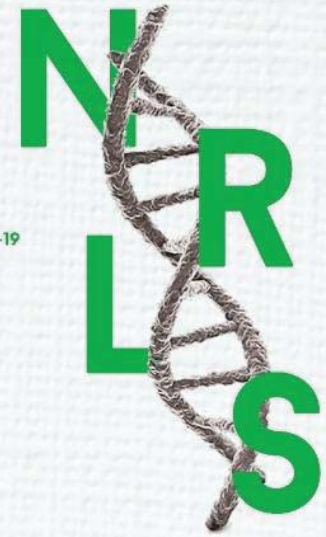

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PREFACE: the 3rd International Conference on Natural Resources and Life Sciences (NRLS) 2020

Nowadays, the sustainability of energy generation and environmental wellness are two of the big challenges in the world. Ecological disturbance and depletion of non-renewable energy in most countries urge the need for development and exploration of sustainable bioenergy resources. A proper approach to implement biotechnology for converting and conserving resources will be of great importance. Ideally, the conversion of natural resources into a certain form of energy should be parallel with the bioproduction of valuable compounds. Furthermore, environmental wellness does encourage us to employ proper habits that promote a healthy environment for a healthy life.

The bioproduction of valuable compounds originating from renewable resources and carbon-neutral waste materials as substrates is a promising approach for a sustainable environment and healthy life. Recent studies on genetic, epigenetic, protein and metabolic engineering offer significant improvement strategies in the bioproduction of many valuable compounds, such as biosurfactants, biofuels, bioinsecticides, bioplastic precursors, biopharmaceuticals, functional food, etc. Hence, in the 3rd International Conference on Natural Resources and Life Sciences (NRLS) themed Green technology to promote sustainable clean energy, environmental wellness, and healthy life, we will highlight the latest developments in biotechnological research and its applications, consisting of Clean Energy and Environmental Sustainability, Sustainable Agriculture, and Health Care.

Following the successful program of the 1st & 2nd NRLS, we intend to make the two-day meeting followed by a one-day workshop in the 3rd NRLS, as a global forum for scientific and industrial communities to discuss the recent advances in biotechnological research and its application. It is our great pleasure to welcome you to the virtual 3rd NRLS from September 23rd to 24th, 2020.

After a rigorous selection process, the Scientific & Editorial Board (S.E. Board) of the virtual 3rd NRLS decided to publish 40 papers in the E3S Web of Conferences, an open-access proceeding

in environment, energy, and earth sciences, managed by EDP Sciences, Paris, France, and indexed on Scopus, Scimago, Conference Proceedings Citation Index-Science (CPCI-S) of Clarivate Analytics's Web of Science, and DOAJ (Directory of Open Access Journals). As a result, E3S Web of Conferences is a conference proceeding with the highest SJR (Scopus and Scimago) score compared to other conference proceedings.

The proceeding of the 3rd NRLS comprises 40 selected papers compiled by 253 authors from 72 institutions. To improve the quality of manuscripts, S.E. Boards apply for a "guidance program" for several manuscripts. The impact there is joint research by Indonesian and overseas scholars. In the collaboration research, 22 institutions were involved, of which were from abroad Indonesia. The overseas institutions are from Germany, India, Jordan, Pakistan, the Republic of Korea, Latvia, Lithuania, Malaysia, the Netherlands, Poland, Taiwan - ROC, Thailand, Timor Leste, the United Kingdom, and Vietnam. Each manuscripts submitted in the E3S Web of Conferences was reviewed by at least two experts using the double-blind system (list of the experts in S.E. Board). As a result, the published articles have passed all necessary improvement requirements following the Web of Conferences standard, reviewer's comments, S.I. (*Système International d'Unités*), similarity tests by the Turnitin program (with the highest threshold of 20 %), meet the standard value of 85 % of the Premium Grammarly program, amount 90 % of references must be at least dated from 15 years and reflected on Google, as well as editing procedures by professional editors from five countries (Indonesia, Estonia, Georgia, Pakistan, and the United Kingdom).

We thank all presenters and attendees for the rigorous participation in this conference to share scientific ideas, inspire new studies for closer co-operations. We hope you are encouraged for further collaboration in order to explore natural resources and life sciences in future. We look forward to inviting you for the next 4th NRLS.

Surabaya, Februari 28, 2023

Dr.rer.nat. Theresia Desy Askitosari, S.Si., M.Biotech.
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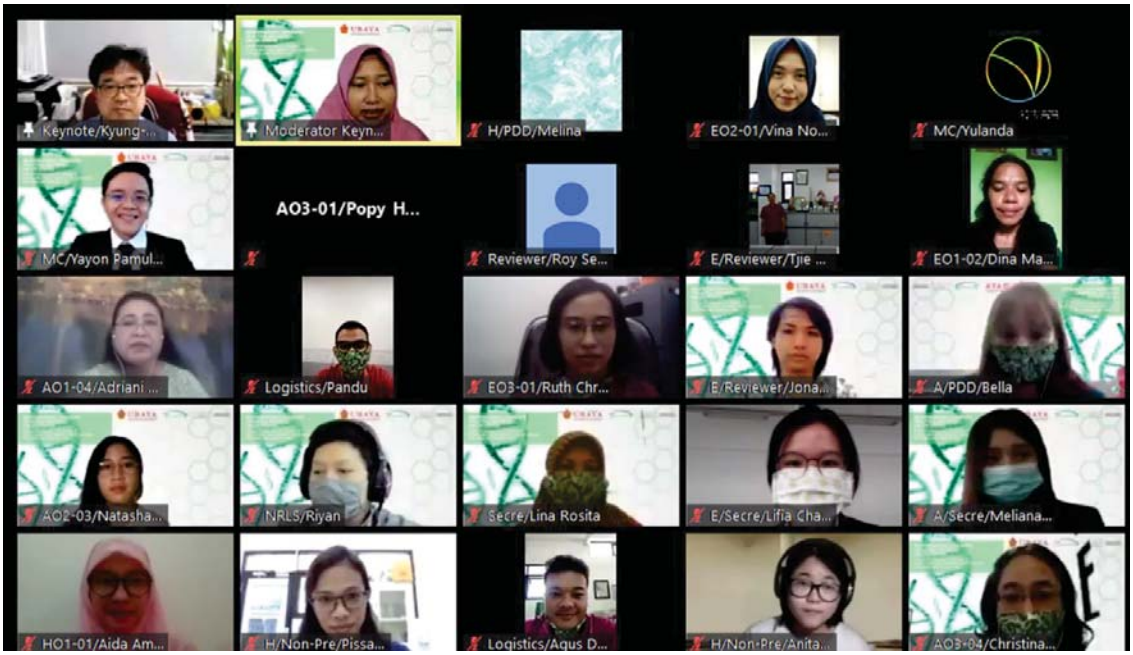

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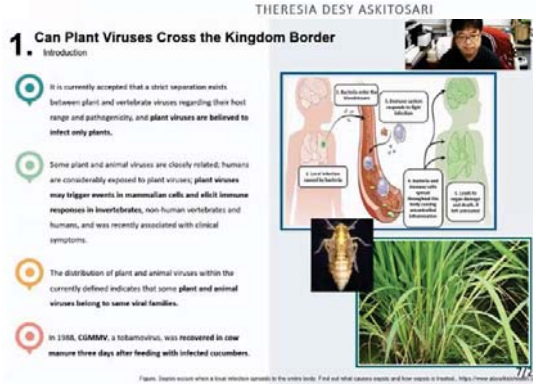

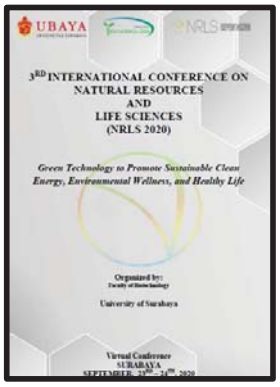

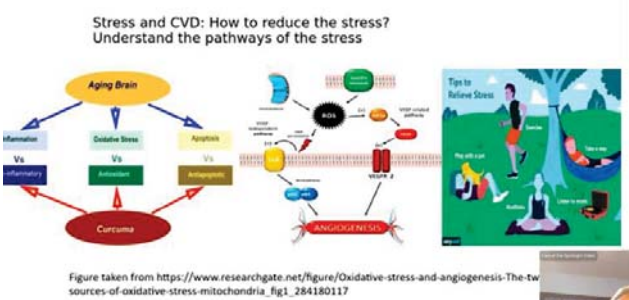

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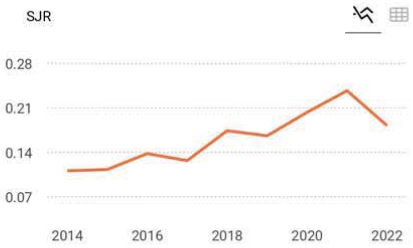

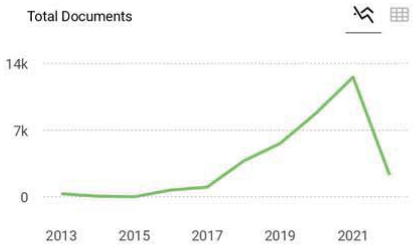

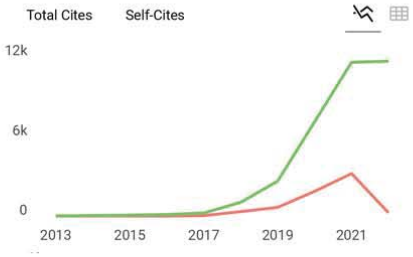

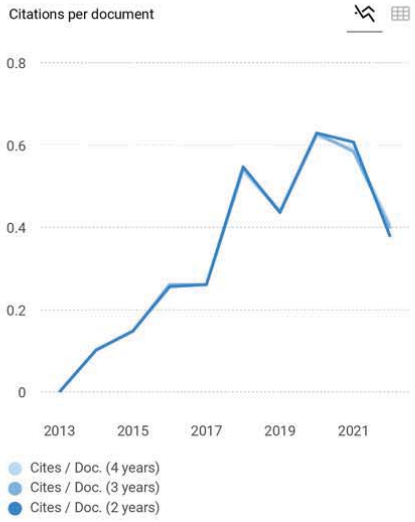

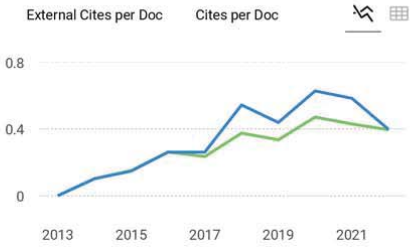

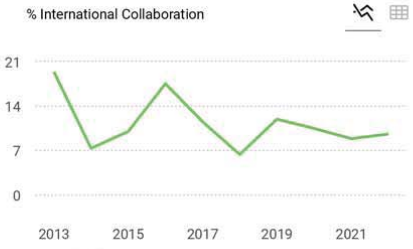

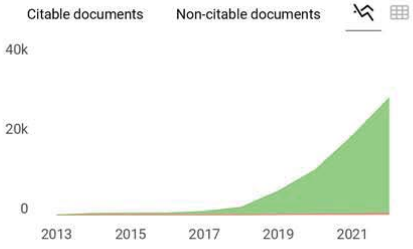

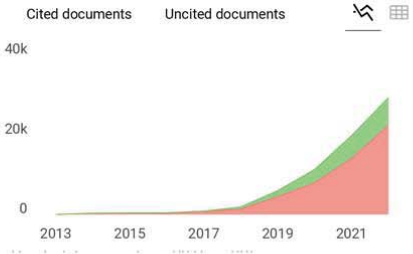

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Timur 5 months ago

Hello! It is mentioned above that the COVERAGE is for the period 2013-2021. Does it mean that the

coverage was discontinued in 2022?

reply

SCImago Team

Melanie Ortiz 5 months ago

Dear Timur,
Thank you very much for your comment.
All the metadata have been provided by Scopus /Elsevier in their last update sent to SCImago, including the Coverage's period data. The SJR for 2022 was released on 1st May 2023. We suggest you consult the Scopus database directly to see the current index status as SJR is a static image of Scopus, which is changing every day.
The Scopus' update list can also be consulted here:
https://www.elsevier.com/solutions/scopus/how-scopus-works/content
Best Regards, SCImago Team

A **Ali TARRAQ** 2 years ago

This conference procceding contains a collection of high quality papers.

Why not reconsidering it by SCOPUS ?

reply

SCImago Team

Melanie Ortiz 2 years ago

Dear Ali,
thank you very much for your comment, unfortunately we cannot help you with your request. We suggest you contact Scopus support: https://service.elsevier.com/app/answers/detail/a_id/14883/kw/scimago/supporthub/scopus/
Best Regards, SCImago Team

E **Elisa Julianti** 2 years ago

Hello,

This Conference Proceeding is having more number of quality manuscript and many more funded article.

Please consider it for scopus.

reply

SCImago Team

Melanie Ortiz 2 years ago

Dear Elisa, thanks for your participation! Best Regards, SCImago Team

Nurhadi 2 years ago

Dear Scimago Team.
Is it possible for me to submit my articles in the E3S Web of Conferences to a journal with the index Q1/Q2/Q3/Q4, and does it not violate plagiarism? Thank you.

reply

S **Sarah Pham** 2 years ago

Dear Nurhadi,
I have the same question as yours. My paper was published in e3s in 2020 when it was still

schopus listed (Q3). Now it has been out listed. SO I WANt to find another Schopus listed papers to submit my e3s paper. I wonder what the answer you received from E3S or other related authorities? Thanks

SCImago Team

Melanie Ortiz 2 years ago

Dear Nurhadi,
thank you very much for your comment.
We suggest you contact E3S Web of Conferences editorial staff so they could inform you more deeply concerning the copyright. Besides, you'll need to check the editorial policy of the journal you'll choose and inform the editorial staff.
Best Regards, SCImago Team

T **TheHung** 3 years ago

Dear SCImago Team

Could you tell me the E3S Web of Conferences belongs to the blacklist journals or not? Because I got some information from my college. Please advise

Thank you very much

reply

SCImago Team

Melanie Ortiz 3 years ago

Dear TheHung,
Thank you for contacting us.
SJR is a portal with scientometric indicators of journals indexed in Scopus. All the data have been provided by Scopus /Elsevier and SCImago doesn´t have the authority over this data. For more information about predatory journals or publishers, you can check the link below:
https://beallslist.weebly.com/
Best regards, SCImago Team

A **Antonietta Ianniello** 3 years ago

Dear SCImago Team

Could you please advise whether E3S Web of Conferences has an impact factor? Because in internet I saw that this journal has 0.52 IF. Please advise

Thank you very much

reply

SCImago Team

Melanie Ortiz 3 years ago

Dear Antonietta, thank you very much for your comment. SCImago Journal and Country Rank uses Scopus data, our impact indicator is the SJR. We suggest you consult the Journal Citation Report for other indicators (like Impact Factor) with a Web of Science data source. Best Regards, SCImago Team

E **Ezhil** 3 years ago

Dear SCImago Team

E3 web of conferences journal Coverage mentioned is 2013-2020. Will it be extended.

reply

SCImago Team

Melanie Ortiz 3 years ago

Dear Ezhil,
thank you very much for your comment, unfortunately we cannot help you with your request. We suggest you contact Scopus support: https://service.elsevier.com/app/answers/detail/a_id/14883/kw/scimago/supporthub/scopus/
Best Regards, SCImago Team

S **Siripen** 3 years ago

Dear SCImago Team

Could youn please advise whether E3S Web of Conferences is a journal? What category it is called? Is it a conference proceedings or journal? Because in E3S Web of Conferences, it says it is a journal but in scopus, it is a conference proceedings. Please advise

Thank you very much

reply

T **Tag** 3 years ago

It's not a journal, it is Conferences Proceedings.

E **Elena** 4 years ago

currently the quartile of this journal is 3

reply

SCImago Team

Melanie Ortiz 4 years ago

Dear Elena,
Thank you for contacting us. This publication type hasn't a quartile assigned. We calculate the SJR data for all the publication types, but the Quartile data are only calculated for Journal type's publications. Best regards, SCImago Team

T **Thanh Quang Khai Lam** 4 years ago

Hi
Is "Lecture Notes in Civil Engineering" journal in Q4?
I don't see it in Scimago.
Thanks

reply

M **Madhuri Damaraju** 5 years ago

Hi,

Are the conference proceedings published in E3S web of conferences, scopus indexed?

Thanks

reply

SCImago Team

Elena Corera 5 years ago

Dear Madhuri, in the SCImago Journal & Country Ranks all the information that we have available of the journals in Open Access is shown, if you do not locate the journal in the search engine, Scopus / Elsevier has not provided us with your data. Best Regards, SCImago Team

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Source details

E3S Web of Conferences

Open Access

Scopus coverage years: from 2013 to Present

E-ISSN: 2267-1242

Subject area: Earth and Planetary Sciences: General Earth and Planetary Sciences; Environmental Science: General Environmental Science; Energy: General Energy

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CiteScoreTracker 2023

$$0.9 = \frac{26{,}681 \text{ Citations to date}}{29{,}751 \text{ Documents to date}}$$

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