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[Crystals] Manuscript ID: crystals-1526077 - Payment Commitment Letter

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Julia Ding <julia.ding@mdpi.com>
to Gerald, MDPI, Julia, Alma, Crystals, Agus, Gerald, Ganang, Deni

Mon, Jan 10, 9:21 AM

Dear Authors,

Congratulations on the acceptance of your manuscript. In order to accelerate the publication of the manuscript, we kindly request that you sign and either stamp or fingerprint the following letter confirming your commitment to paying the article processing charge (APC) to MDPI within 2 days. This will enable us to publish your paper before the payment is made. Please note that the signature should be handwritten, and the due date should be within one month.

Manuscript ID: crystals-1526077
Type of manuscript: Article
Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *

Thank you in advance for your cooperation.

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We look forward to hearing from you soon.

Kind regards,
Ms. Julia Ding
E-Mail: julia.ding@mdpi.com

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Re: [Crystals] Manuscript ID: crystals-1395829 - Authorship Change Form

Inbox ×

Crystals <crystals@mdpi.com> Tue, Oct 19, 2021, 2:44 PM

to me, Agus, Fatah, Deni, Anistasia

Dear Dr. Pramono,

We hope you are well. The revised manuscript was well received. We noticed that the authorship was changed. As per our policy, please sign the Authorship Change Form (see attachment). After that, we will process your manuscript further soon. Many thanks for your great support.

Looking forward to your reply.

Best regards,
Richard Li
Managing Editor, MDPI Wuhan

MDPI Branch Office, Wuhan
5.5 Creative Industry Park, 25th Floor, No.6 Jingan Road, 430064 Wuhan, Hubei Province, China
Tel.: +86 27 8780 8658

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[Crystals] Manuscript ID: crystals-1526077; doi: 10.3390/cryst12010096. Paper has been published.

Inbox ×

crystals@mdpi.com

Thu, Jan 13, 10:23 AM

to agus.pramono, gerald.ensang.timuda, ganangpramudya, deni.shidqi.khaerudini, billing, website, crystals, sukey.shi, julia.ding

Dear Authors,

We are pleased to inform you that your article "Synthesis of Spinel-Hydroxyapatite Composite Utilizing Bovine Bone and Beverage Can" has been published in Crystals as part of the Special Issue Mineralogical Crystallography Volume II and is available online:

Abstract: https://www.mdpi.com/2073-4352/12/1/96
HTML Version: https://www.mdpi.com/2073-4352/12/1/96/htm
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Journal Crystals (https://www.mdpi.com/journal/crystals) (ISSN 2073-4352)

Manuscript ID crystals-1457676

Type Article

Title Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can

Authors Agus Pramono * , Gerald Ensang Timuda * , Ganang Pramudya Ahmad Rifai , Deni Shidqi Khaerudini *

Abstract Spinel-based hydroxyapatite composite (SHC) has been synthesized utilizing bovine bones as the source of the hydroxyapatite (HAp) and beverage cans as the aluminum (Al) source. The bovine bones were defatted and calcined in the air atmosphere to transform them into hydroxyapatite. The beverage cans were cut and milled to obtain fine Al powder and then sieved to obtain three different particle mesh size fractions: +100#, -140#+170#, and -170#. The SHC was synthesized using the self-propagating intermediate-temperature synthesis (SIS) method at 900 oC for 2 h with (HAp : Al : Mg) ratio of (87 : 10 : 3 wt.%) and various compaction pressure of 100, 171, and 200 MPa. It was found that the mechanical properties of the SHC are influenced by the Al particle size and the compaction pressure. Smaller particle size produces the tendency of increasing the hardness and reducing the porosity of the composite. Meanwhile, increasing compaction pressure produces a reduction of the SHC porosity. The increase of the hardness is also observed by increasing the compaction pressure except for the smallest Al particle size (-170#), where the hardness instead becomes smaller.

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Authors' Responses to Reviewer's Comments (Reviewer 2)

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Author's Notes File: coverletter&report=15479205)

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English language and style

( ) Extensive editing of English language and style required
(x) Moderate English changes required
( ) English language and style are fine/minor spell check required
( ) I don't feel qualified to judge about the English language and style

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	( )	(x)	( )	( )
Is the research design appropriate?	( )	( )	(x)	( )
Are the methods adequately described?	( )	( )	(x)	( )
Are the results clearly presented?	( )	(x)	( )	( )
Are the conclusions supported by the results?	(x)	( )	( )	( )

Comments and Suggestions for Authors

The present work is aimed at synthesizing a spinel-based hydroxyapatite composite and evaluating mechanical properties in relation to the arming agent. There are several aspects that would require attention, regarding both form and substrate:

For the form, the English language should be improved; ex:

Row 40: bovine bone .... that ”needs” to be recycled; Row 48: ”has” been reported; Row 54: ”harmful”; Row 227: …play important ”roles”… ; Row 233: …this is probably related ”to” the presence..

Still regarding form, at 3. Results and discussions there are several places where info from previous sections is repeated - ex: The HAp was extracted from bovine bones; the process needs the bones to be defatted, dried, cut … ; Three different sieve sizes were used: 100#, 140#, and 170# etc.

Regarding substrate, I have 4 observations:

1. From what the final part of the introduction and later results and discussions present, the composite is made out of MgO-Al_2O_3-$MgAl_2O_4$-HAp and in 2.2., it is stated that Al and Mg were used as the metal component in the composite. I would advise reformulations wherever metallic components of the composites appear. At a first glance, it misleads the reader.
2. At 2.3. Self-propagating Intermediate-temperature Synthesis (SIS), it is not obvious how can the heat propagation from one specific surface (instead of from all surfaces) induce a more homogenous heating (I advise a reference here); in regard to this observation, it is somehow unclear what benefits come from the SIS processing compared to conventional heating, microwave heating, hydrothermal processing and why this technique was selected. More data from the literature is required here.

3. Considering the fact that the main compound of this work contains a relatively large amount of Al (10%), as a form of Al_2O_3 or $MgAl_2O_4$, a reader will find it necessary to find a more comprehensive justification for the use of Al in a HAp composite, more than the fact that Al_2O_3 poses no harmful effect on the human body. What benefit does it bring towards HAp? How does the literature describe the effect of different contents of Al/Al_2O_3/$MgAl_2O_4$ upon a HAp composite?

4. In the results and discussion section, it is stated that Al is the metal used in the composite as a reinforcement to improve the mechanical properties of the HAp ceramics. Although initial X-ray analysis was performed on the HAp obtained from bovine bones, there is no compaction pressure nor hardness performed on the reference sample, required to evaluate the effect that Al has in reinforcing the ceramic. A reference sample without Al/Mg is needed here.

Submission Date 26 October 2021

Date of this review 03 Nov 2021 21:03:38

Journal Crystals (https://www.mdpi.com/journal/crystals) (ISSN 2073-4352)

Manuscript ID crystals-1457676

Type Article

Title Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can

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Authors' Responses to Reviewer's Comments (Reviewer 1)

Author's Notes Please see the attachment

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English language and style

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Are the results clearly presented?	( )	(x)	( )	( )
Are the conclusions supported by the results?	(x)	( )	( )	( )

Comments and Suggestions for Authors

The article describes the synetsis of a hydroxyapatite where the raw materials derive from bovine teeth and cans of aluminum milled and made powder.

The results report are reproducible?

Comments:

Paragraph 2.3 (pag. 2)

we ask you to explain the process described in more detail

Fig. 2 (pag. 3)

The figure shows the XRD of the bovine tooth used, with details on the crystallographic planes 211, 112 and 300. Usually the signal of the 300 is lower than the other two indicated. Can the author explain why?

In table 2 (reported on page 5) the tests performed are reported, clearly indicated in the following fig. 3.

The following figures (figs. 4 and 5 on page 6) show only 4 XRDs relating to some tests carried out.

Is it possible to also evaluate the other XRDs carried out on the other tests not shown?

Fig. 4: This figure shows how by applying different experimental parameters different results are obtained.

Figure 4b, for example, shows how there is no Al_2O_3 signal, the phase present and visible in Figure 4a.

Figure 4b also shows how in this test there is less presence of the Al signal, and how the HAp shows a double signal at the diffraction maximum 211.

Could this result be linked to a different degree of crystallinity of the hydroxyapatite obtained in example 4b compared to that relating to the diffractogram 4a?

Isn't that a value (the degree of crystallinity) that we can introduce into this discussion?

Figs 6 and 7: introduce bar scales. You don't read well

Conclusions: only one thing is not clear to me: do Al and Mg also enter the crystal structure of HAp or do they only serve to attribute chemical-physical properties to the composite described?

Submission Date	26 October 2021
Date of this review	10 Nov 2021 11:14:31

Journal Crystals (https://www.mdpi.com/journal/crystals) (ISSN 2073-4352)

Manuscript ID crystals-1457676

Type Article

Title Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can

Authors Agus Pramono * , Gerald Ensang Timuda * , Ganang Pramudya Ahmad Rifai , Deni Shidqi Khaerudini *

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Authors' Responses to Reviewer's Comments (Reviewer 2)

Author's Notes Thank you for your comment. The supplementary information has been carefully improved according to your suggestion.

Review Report Form

English language and style
(x) Extensive editing of English language and style required
( ) Moderate English changes required
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( ) I don't feel qualified to judge about the English language and style

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Does the introduction provide sufficient background and include all relevant references?	(x)	( )	( )	( )
Is the research design appropriate?	( )	(x)	( )	( )
Are the methods adequately described?	(x)	( )	( )	( )
Are the results clearly presented?	(x)	( )	( )	( )
Are the conclusions supported by the results?	(x)	( )	( )	( )

Comments and Suggestions for Authors

The supplementary material needs to be substantially improved with extensive editing of the English language and style.

Submission Date 26 October 2021

Date of this review 18 Nov 2021 20:27:49

Journal: Crystals (https://www.mdpi.com/journal/crystals) (ISSN 2073-4352)

Manuscript ID: crystals-1457676

Type: Article

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Authors' Responses to Reviewer's Comments (Reviewer 3)

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English language and style

( ) Extensive editing of English language and style required
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(x) I don't feel qualified to judge about the English language and style

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	( )	( )	(x)	( )
Is the research design appropriate?	( )	( )	(x)	( )
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Are the results clearly presented?	( )	( )	(x)	( )
Are the conclusions supported by the results?	( )	( )	(x)	( )

Comments and Suggestions for Authors

Hydroxyapatite for medical purposes needs to be very well characterised. A rigorous control of the quality is indispensable. There are a lot of questions regarding this research work:

1. the Hap obtained from bovine bone was not enough charcterized (e. g. Fig 2!)
2. how the authors insure the constant and same quality of Hap from bovine bone?
3. On Fig. 4 there or "unknown" peaks! It is not allowed in a research paper! For medical purposes the raw materials and the products need to be well characterised and the preparation method to be reproducible!

Submission Date: 26 October 2021

Date of this review: 13 Nov 2021 07:30:58

Journal: Crystals (https://www.mdpi.com/journal/crystals) (ISSN 2073-4352)

Manuscript ID: crystals-1457676

Type: Article

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Are the results clearly presented?	( )	( )	(x)	( )
Are the conclusions supported by the results?	( )	( )	(x)	( )

Comments and Suggestions for Authors

The authors responded that this study is in a very "early stage". They should characterise the prepared materials by different methods, not inly by XRD! They have to be sure that the preparation methods are reproducible and the products have constant quality, applicable in biomedicine.

Submission Date: 26 October 2021

Date of this review: 18 Nov 2021 12:36:12

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Journal Crystals (https://www.mdpi.com/journal/crystals) (ISSN 2073-4352)

Manuscript ID crystals-1457676

Type Article

Title Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can

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Authors' Responses to Reviewer's Comments (Reviewer 3)

Author's Notes Please see the attachment

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Review Report Form

English language and style	( ) Extensive editing of English language and style required ( ) Moderate English changes required ( ) English language and style are fine/minor spell check required (x) I don't feel qualified to judge about the English language and style

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Comments and Suggestions for Authors	The authors responded that this study is in a very "early stage". They should characterise the prepared materials by different methods, not inly by XRD! They have to be sure that the preparation methods are reproducible and the products have constant quality, applicable in biomedicine.
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Authors' Responses to Reviewer's Comments (Reviewer 3)

Author's Notes: Please see the attachment

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Author's Notes File: coverletter&report=15767864)

Review Report Form

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Submission Date: 26 October 2021

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Title Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can

Authors Agus Pramono * , Gerald Ensang Timuda * , Ganang Pramudya Ahmad Rifai , Deni Shidqi Khaerudini *

Abstract Spinel-based hydroxyapatite composite (SHC) has been synthesized utilizing bovine bones as the source of the hydroxyapatite (HAp) and beverage cans as the aluminum (Al) source. The bovine bones were defatted and calcined in the air atmosphere to transform them into hydroxyapatite. The beverage cans were cut and milled to obtain fine Al powder and then sieved to obtain three different particle mesh size fractions: +100#, -140#+170#, and -170#. The SHC was synthesized using the self-propagating intermediate-temperature synthesis (SIS) method at 900 oC for 2 h with (HAp : Al : Mg) ratio of (87 : 10 : 3 wt.%) and various compaction pressure of 100, 171, and 200 MPa. It was found that the mechanical properties of the SHC are influenced by the Al particle size and the compaction pressure. Smaller particle size produces the tendency of increasing the hardness and reducing the porosity of the composite. Meanwhile, increasing compaction pressure produces a reduction of the SHC porosity. The increase of the hardness is also observed by increasing the compaction pressure except for the smallest Al particle size (-170#), where the hardness instead becomes smaller.

The coverletter for this review report has been saved in the database. You can safely close this window.

Authors' Responses to Reviewer's Comments (Reviewer 2)

Author's Notes Please see the attachment

Report Notes (/user/review/displayFile/22012485/2TKus3OS?file=author-

Author's Notes File: Report Notes (/user/review/displayFile/22012180/21Ra3OG?file=author coverletter&report=15479205)

Review Report Form

English language and style
( ) Extensive editing of English language and style required
(x) Moderate English changes required
( ) English language and style are fine/minor spell check required
( ) I don't feel qualified to judge about the English language and style

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	( )	(x)	( )	( )
Is the research design appropriate?	( )	( )	(x)	( )
Are the methods adequately described?	( )	( )	(x)	( )
Are the results clearly presented?	( )	(x)	( )	( )
Are the conclusions supported by the results?	(x)	( )	( )	( )

Comments and Suggestions for Authors

The present work is aimed at synthesizing a spinel-based hydroxyapatite composite and evaluating mechanical properties in relation to the arming agent. There are several aspects that would require attention, regarding both form and substrate:

For the form, the English language should be improved; ex:

Row 40: bovine bone .... that ”needs” to be recycled; Row 48: ”has” been reported; Row 54: ”harmful”; Row 227: …play important ”roles”… ; Row 233: …this is probably related ”to” the presence..

Still regarding form, at 3. Results and discussions there are several places where info from previous sections is repeated - ex: The HAp was extracted from bovine bones; the process needs the bones to be defatted, dried, cut … ; Three different sieve sizes were used: 100#, 140#, and 170# etc.

Regarding substrate, I have 4 observations:

1. From what the final part of the introduction and later results and discussions present, the composite is made out of MgO-Al_2O_3-$MgAl_2O_4$-HAp and in 2.2., it is stated that Al and Mg were used as the metal component in the composite. I would advise reformulations wherever metallic components of the composites appear. At a first glance, it misleads the reader.
2. At 2.3. Self-propagating Intermediate-temperature Synthesis (SIS), it is not obvious how can the heat propagation from one specific surface (instead of from all surfaces) induce a more homogenous heating (I advise a reference here); in regard to this observation, it is somehow unclear what benefits come from the SIS processing compared to conventional heating, microwave heating, hydrothermal processing and why this technique was selected. More data from the literature is required here.

3. Considering the fact that the main compound of this work contains a relatively large amount of Al (10%), as a form of Al_2O_3 or $MgAl_2O_4$, a reader will find it necessary to find a more comprehensive justification for the use of Al in a HAp composite, more than the fact that Al_2O_3 poses no harmful effect on the human body. What benefit does it bring towards HAp? How does the literature describe the effect of different contents of Al/Al_2O_3/$MgAl_2O_4$ upon a HAp composite?

4. In the results and discussion section, it is stated that Al is the metal used in the composite as a reinforcement to improve the mechanical properties of the HAp ceramics. Although initial X-ray analysis was performed on the HAp obtained from bovine bones, there is no compaction pressure nor hardness performed on the reference sample, required to evaluate the effect that Al has in reinforcing the ceramic. A reference sample without Al/Mg is needed here.

Submission Date 26 October 2021

Date of this review 03 Nov 2021 21:03:38

Journal Crystals (https://www.mdpi.com/journal/crystals) (ISSN 2073-4352)

Manuscript ID crystals-1457676

Type Article

Title Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can

Authors Agus Pramono * , Gerald Ensang Timuda * , Ganang Pramudya Ahmad Rifai , Deni Shidqi Khaerudini *

Abstract Spinel-based hydroxyapatite composite (SHC) has been synthesized utilizing bovine bones as the source of the hydroxyapatite (HAp) and beverage cans as the aluminum (Al) source. The bovine bones were defatted and calcined in the air atmosphere to transform them into hydroxyapatite. The beverage cans were cut and milled to obtain fine Al powder and then sieved to obtain three different particle mesh size fractions: +100#, -140#+170#, and -170#. The SHC was synthesized using the self-propagating intermediate-temperature synthesis (SIS) method at 900 oC for 2 h with (HAp : Al : Mg) ratio of (87 : 10 : 3 wt.%) and various compaction pressure of 100, 171, and 200 MPa. It was found that the mechanical properties of the SHC are influenced by the Al particle size and the compaction pressure. Smaller particle size produces the tendency of increasing the hardness and reducing the porosity of the composite. Meanwhile, increasing compaction pressure produces a reduction of the SHC porosity. The increase of the hardness is also observed by increasing the compaction pressure except for the smallest Al particle size (-170#), where the hardness instead becomes smaller.

The coverletter for this review report has been saved in the database. You can safely close this window.

Authors' Responses to Reviewer's Comments (Reviewer 1)

Author's Notes Please see the attachment

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Author's Notes File Report Notes (/user/review/displayFile/21331375/V827pIUX?file=author coverletter&report=15456838)

Review Report Form

English language and style

( ) Extensive editing of English language and style required
( ) Moderate English changes required
(x) English language and style are fine/minor spell check required
( ) I don't feel qualified to judge about the English language and style

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	(x)	( )	( )	( )
Is the research design appropriate?	( )	(x)	( )	( )
Are the methods adequately described?	( )	(x)	( )	( )
Are the results clearly presented?	( )	(x)	( )	( )
Are the conclusions supported by the results?	(x)	( )	( )	( )

Comments and Suggestions for Authors

The article describes the synetsis of a hydroxyapatite where the raw materials derive from bovine teeth and cans of aluminum milled and made powder.

The results report are reproducible?

Comments:

Paragraph 2.3 (pag. 2)

we ask you to explain the process described in more detail

Fig. 2 (pag. 3)

The figure shows the XRD of the bovine tooth used, with details on the crystallographic planes 211, 112 and 300. Usually the signal of the 300 is lower than the other two indicated. Can the author explain why?

In table 2 (reported on page 5) the tests performed are reported, clearly indicated in the following fig. 3.

The following figures (figs. 4 and 5 on page 6) show only 4 XRDs relating to some tests carried out.

Is it possible to also evaluate the other XRDs carried out on the other tests not shown?

Fig. 4: This figure shows how by applying different experimental parameters different results are obtained.

Figure 4b, for example, shows how there is no Al_2O_3 signal, the phase present and visible in Figure 4a.

Figure 4b also shows how in this test there is less presence of the Al signal, and how the HAp shows a double signal at the diffraction maximum 211.

Could this result be linked to a different degree of crystallinity of the hydroxyapatite obtained in example 4b compared to that relating to the diffractogram 4a?

Isn't that a value (the degree of crystallinity) that we can introduce into this discussion?

Figs 6 and 7: introduce bar scales. You don't read well

Conclusions: only one thing is not clear to me: do Al and Mg also enter the crystal structure of HAp or do they only serve to attribute chemical-physical properties to the composite described?

Submission Date 26 October 2021

Date of this review 10 Nov 2021 11:14:31

mail.google.com/mail/u/0/?tab=rm&ogbl#inbox/FMfcgzGkZkNBMkbxWxfxvbHkljqXBDvX

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824 dari 2.649

Oscar Guo / MDPI <oscar.guo@mdpi.com>
kepada fatah.sulaiman, crystals, saya

10 Sep 2021 11.32

Inggris > Indonesia Terjemahkan pesan
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Dear Dr. Pramono,

Thank you for submitting your manuscript "Composites Biomaterials based on the use of cow bones processed by self-high propagating temperatures synthesis (SHS)" to the special issue "Crystal Plasticity (Volume II)". Your paper has been successfully received. I will ask my colleague to further process it as soon as possible. Once enough review reports are received, we will get back to you for revision.

Besides, if you have any other works to be published, we would be happy to receive your other submissions.

Have a nice day and keep in touch.

Best regards,

Oscar

--
Section Managing Editor
E-Mail: oscar.guo@mdpi.com

MDPI Branch Office, Wuhan
5.5 Creative Industry Park, 25th Floor, No.6 Jingan Road, 430064 Wuhan, Hubei Province, China
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662 dari 2.653

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kepada saya

Rab, 1 Des 2021 12.29

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Dear Agus Pramono

The editors of the «Broad Exposure to Science and Technology 2021» kindly request you to review the manuscript «Copper Layer on an Aluminum Door Frame to Prevent Spread of Bacteria». To consider the manuscript, you can download it after logging in your account on publisher's website:

URL : https://www.scientific.net
Username : agus.pramono@untirta.ac.id
Password : nYyKK969

After you log in, please select the role 'Reviewer' from the list on the top menu. On the Reviewer Menu, click the Papers tab. The Editors realize that this task requires considerable work, and we thank you for your helpful timely effort.

If you are willing to perform the review of the suggested manuscript, please follow the link I agree to review. In case you are unable to review the manuscript or your involvement may cause a conflict of interest, follow the link I do not agree to review, please find another candidate.

If you have any questions, please contact one of the Editors at your earliest convenience.
Best regards,
Endarto Wardhono
endarto.wardhono@untirta.ac.id

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kepada saya

Rab, 1 Des 2021 12.29

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Dear Agus Pramono

The editors of the «Broad Exposure to Science and Technology 2021» kindly request you to review the manuscript «Physical and Mechanical Properties of Twin-Wire Arc Spray and Wire Flame Spray Coating on Carbon Steel Surface». To consider the manuscript, you can download it after logging in your account on publisher's website:

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Please revise the manuscript according to the referees' comments and upload the revised file within 10 days.

Please use the version of your manuscript found at the above link for your revisions.

(I) Any revisions to the manuscript should be marked up using the "Track Changes" function if you are using MS Word/LaTeX, such that any changes can be easily viewed by the editors and reviewers.
(II) Please provide a cover letter to explain, point by point, the details of the revisions to the manuscript and your responses to the referees' comments.
(III) If you found it impossible to address certain comments in the review reports, please include an explanation in your rebuttal.
(IV) The revised version will be sent to the editors and reviewers.

If one of the referees has suggested that your manuscript should undergo extensive English revisions, please address this issue during revision. We propose that you use one of the editing services listed at https://www.mdpi.com/authors/english or have your manuscript checked by a native English-speaking colleague.

Do not hesitate to contact us if you have any questions regarding the revision of your manuscript. We look forward to hearing from you soon.

Kind regards,

Aries Gan, MSc
Assistant Editor
Email: aries.gan@mdpi.com
--
MDPI
Crystals Editorial Office
St. Alban-Anlage 66, 4052 Basel, Switzerland
Tel.: +41 61 683 77 34; Fax: +41 61 302 89 18
E-Mail: crystals@mdpi.com

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Re: [Crystals] Manuscript ID: crystals-1395829 - additional report Eksternal Kotak Masuk

Aries Gan <aries.gan@mdpi.com> Kam, 30 Sep 2021 13.46
kepada Agus, crystals, saya, Fatah, Deni, Anistasia

Inggris > Indonesia Terjemahkan pesan Nonaktifkan untuk: Inggris

Dear Dr. Pramono,

I am writing to kindly inform you that there might be additional report for your manuscript. We send the three collected reports to you in order to process your interesting manuscript in a timely manner. We will send the other report to you right after we receiving it.

Best regards,
Aries

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Aries Gan <aries.gan@mdpi.com>
kepada Agus, crystals, saya, Fatah, Deni, Anistasia

Jum, 8 Okt 2021 13.36

Inggris > Indonesia Terjemahkan pesan Nonaktifkan untuk: Inggris

Dear Dr. Pramono,

We notice that you chose "Open Review" for your submission. It means that the review reports and the authors' responses will be published online along with your paper. Please confirm if you do like to choose "Open Review" for your paper. If not, we will help change this option for you.

We look forward to hearing from you.

Best regards,
Aries

agus pramono <agus.pramono@untirta.ac.id>
kepada aries.gan

Jum, 8 Okt 2021 15.16

Dear: Crystal Journal Committee

Currently, I am still completing a fairly long revision, after the revision is complete we will definitely send the manuscript and upload it. May I know when the deadline for the last revision, considering we share the team's performance here. so we also need to speed up the revision.
Thank you for the notification

Best regards,
Agus Pramono

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aries.gan@mdpi.com : reviewers@mdpi.com

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>>
>> Pada tanggal Sab, 9 Okt 2021 pukul 09.43 Aries Gan
> <aries.gan@mdpi.com <mailto:aries.gan@mdpi.com>
>> <mailto:aries.gan@mdpi.com <mailto:aries.gan@mdpi.com>>> menulis:

agus pramono <agus.pramono@untirta.ac.id> 18 Okt 2021 10.58
kepada aries.gan

Dear: Committee of Crystals Journal,

I want to inform, that the revision has been completed, but it turns out that there are 2 revisions from our team, one is on track but not comprehensive and the other has been completed but the track has been interrupted due to many additions of data engineering to strengthen the hypothesis, according to the reviewer's request.

Can this be uploaded with some additional engineering data,
so that it adds to the page format because there is 1 image and 2 tables added?

Best regards,
Agus Pramono

2 Lampiran • Dipindai dengan Gmail

crystals-1395829 ...
crystals-1395829 ...

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aries.gan@mdpi.com : reviewers@mdpi.com

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agus pramono <agus.pramono@untirta.ac.id>
kepada aries.gan

12 Okt 2021 12.56

Dear: Committee of Crystals Journal,

Now that the characterization of materials is complete
Still finishing the sentence on the paper
We Hope this week would be finish

Best regards,
Agus Pramono

Aries Gan <aries.gan@mdpi.com>
kepada crystals, saya

12 Okt 2021 12.36

Inggris > Indonesia Terjemahkan pesan   Nonaktifkan untuk: Inggris

Dear Dr. Pramono,

Thank you for letting me know. Once you finish, please directly submit
at the following link.
https://susy.mdpi.com/user/manuscripts/resubmit/4987aab2e90a97e088098f25deb33fca

Best,
Aries

On 2021/10/12 13:56, agus pramono wrote:
> Dear: Committee of Crystals Journal,
>
> Now that the characterization of materials is complete Still
> finishing the sentence on the paper We Hope this week would be
> finish
>
> Best regards, Agus Pramono
>
> Pada tanggal Sen, 11 Okt 2021 pukul 13.42 Aries Gan
> <aries.gan@mdpi.com <mailto:aries.gan@mdpi.com>> menulis:

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agus pramono <agus.pramono@untirta.ac.id> 11 Okt 2021 12.26
kepada fatah.sulaiman, ayah_tami, Anistasia, Deni, aries.gan

Dear: Committee of Crystals Journal,

Thanks for the information, I am currently doing a re-characterization for microstructure retrieval and exothermic simulation.
Because this is the most crucial thing that the reviewers commented on, so we need to make do the best characteristics for the results
We will work hard to produce the best results,

Best regards,
Agus Pramono

...

Aries Gan <aries.gan@mdpi.com> 11 Okt 2021 13.42
kepada crystals, saya

Inggris > Indonesia Terjemahkan pesan Nonaktifkan untuk: Inggris

Dear Dr. Pramono,

Thank you for your message. We fully understand you would like to do the best characteristics. May I expect to know your approximate revision completing date?

Best regards,
Aries

On 2021/10/11 13:26, agus pramono wrote:
> Dear: Committee of Crystals Journal,
>
> Thanks for the information, I am currently doing a re-characterization
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> Because this is the most crucial thing that the reviewers commented on,
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> We will work hard to produce the best results,
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> Agus Pramono

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> Authors: Agus Pramono *, Fatah Sulaiman, Deni Shidqi Khaerudini,
> Anistasia
> Milandia *
> Received: 10 September 2021
> E-mails: agus.pramono@untirta.ac.id
> <mailto:agus.pramono@untirta.ac.id>, fatah.sulaiman@untirta.ac.id
> <mailto:fatah.sulaiman@untirta.ac.id>,
> deni.shidqi.khaerudini@lipi.go.id
> <mailto:deni.shidqi.khaerudini@lipi.go.id>,
> anistasia.milandia@untirta.ac.id
> <mailto:anistasia.milandia@untirta.ac.id>
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>
> Thank you in advance for your kind cooperation and we look forward
> to hearing
> from you soon.
>
> Kind regards,
> Aries Gan, MSc
> Assistant Editor
> Email: aries.gan@mdpi.com <mailto:aries.gan@mdpi.com>
> --
> MDPI
> Crystals Editorial Office
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agus pramono <agus.pramono@untirta.ac.id> 8 Okt 2021 15.16
kepada aries.gan

Dear: Crystal Journal Committee

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Thank you for the notification

Best regards,
Agus Pramono

Aries Gan <aries.gan@mdpi.com> 9 Okt 2021 09.43
kepada crystals, saya

Inggris > Indonesia Terjemahkan pesan Nonaktifkan untuk: Inggris

Dear Dr. Pramono,

Thank you for letting us know your latest revision progress. We look forward to receiving your revised version soon.

Best regards,
Aries

On 2021/10/8 16:16, agus pramono wrote:
> Dear: Crystal Journal Committee
>
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> revision is complete we will definitely send the manuscript and upload
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> Best regards,
> Agus Pramono
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agus pramono <agus.pramono@untirta.ac.id>
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Thank you for the notification

Best regards,
Agus Pramono

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kepada crystals, saya
Sab, 9 Okt 2021 09.43

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Best regards,
Aries

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>
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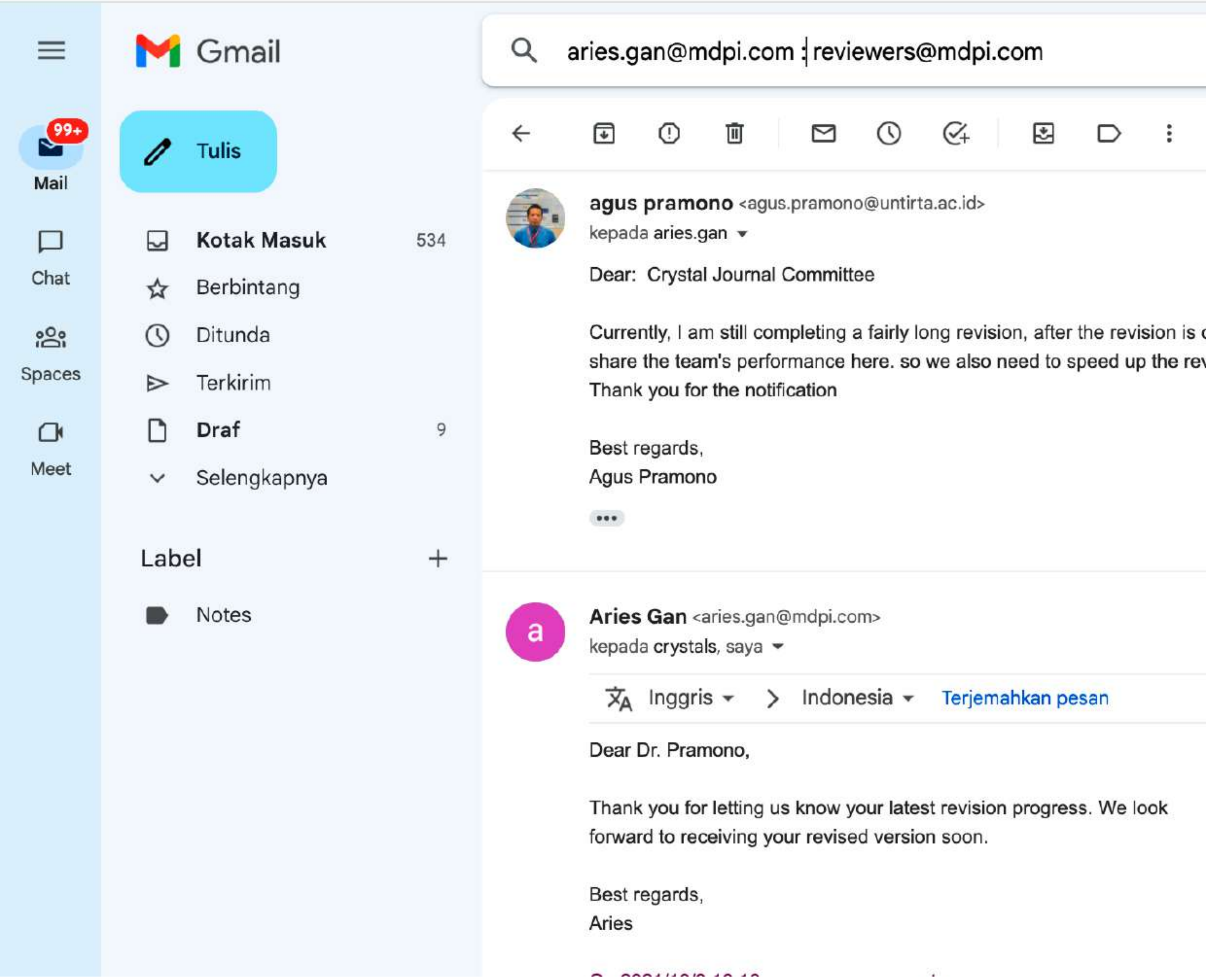
>
> Best regards,
> Agus Pramono
>
> Pada tanggal Jum, 8 Okt 2021 pukul 13.32 Crystals Editorial Office



agus pramono <agus.pramono@untirta.ac.id>
kepada aries.gan

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share the team's performance here. so we also need to speed up the rev
Thank you for the notification

Best regards,
Agus Pramono

Aries Gan <aries.gan@mdpi.com>
kepada crystals, saya

Inggris > Indonesia Terjemahkan pesan

Dear Dr. Pramono,

Thank you for letting us know your latest revision progress. We look forward to receiving your revised version soon.

Best regards,
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Paper has been uploaded

agus pramono <agus.pramono@untirta.ac.id>
kepada aries.gan, fatah.sulaiman, ayah_tami

Sel, 19 Okt 2021 08.03

Dear: Committee of Crystals Journal,

I have completed the full revision with the team, and have uploaded the revised according to the reviewer's instructions. For the next, I would be waiting for directions from you
Thank you for your cooperation, hopefully, the paper will be published soon

Best regards,
Agus Pramono

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20 Okt 2021 12.45

Dear: Mr. Aries
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On 2021/10/28 15:05, agus pramono wrote:
> Dear: Committee of Journal Crystals,
>
> I have uploaded the latest paper, there are some data corrections and
> analysis related to the paper to suit its scope
> We have also corrected the title to "Synthesis of spinel-hydroxyapatite
> composite utilizing bovine bone and beverage can"
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> Thank you for your cooperation, hopefully, it will be published soon
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> Pada tanggal Sen, 25 Okt 2021 pukul 09.52 Crystals Editorial Office
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>
> Manuscript ID: crystals-1395829
> Type of manuscript: Article
> Title: Composites Biomaterials based on the use of cow bones
> pro-cessed as
> Metal Matrix Composites (MMC)
> Authors: Agus Pramono *, Anistasia Milandia *, Fatah Sulaiman, Deni
> Shidqi
> Khaerudini
> Received: 10 September 2021
> E-mails: agus.pramono@untirta.ac.id
> <mailto:agus.pramono@untirta.ac.id>,

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28 Okt 2021 14.05

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28 Okt 2021 15.34

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Type of manuscript: Article
Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *
Received: 26 October 2021
E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id

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Received: 26 October 2021
E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id

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Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *
Received: 26 October 2021
E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id

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Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *
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Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *

Received: 10 December 2021
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Manuscript ID: crystals-1526077
Type of manuscript: Article
Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *
Received: 10 December 2021
E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id
Submitted to section: Mineralogical Crystallography and Biomineralization,
https://www.mdpi.com/journal/crystals/sections/mineralogical_crystallography_biomineralization
Mineralogical Crystallography Volume II
https://www.mdpi.com/journal/crystals/special_issues/mineralogical_crystallography_ii

Your manuscript has been reviewed by experts in the field. Please find your manuscript with the referee reports at this link:
https://susy.mdpi.com/user/manuscripts/resubmit/85e43734d505089bbcd62c6780c299d5

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(II) Please use the version of your manuscript found at the above link for your revisions.
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(IV) Please provide a short cover letter detailing your changes for the editors' and referees' approval.

If one of the referees has suggested that your manuscript should undergo extensive English revisions, please address this issue during revision. We propose that you use one of the editing services listed at https://www.mdpi.com/authors/english or have your manuscript checked by a native English-speaking colleague.

Please do not hesitate to contact us if you have any questions regarding the revision of your manuscript or if you need more time. We look forward to hearing from you soon.

Kind regards,
Ms. Julia Ding
E-Mail: julia.ding@mdpi.com

--
MDPI Wuhan Office No.6 Jingan Road, 5.5 Creative Industry Park, 26th Floor, Hubei Province, China

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25 dari 2.654

Thank you again for your manuscript submission:

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Received: 10 December 2021
E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id
Submitted to section: Mineralogical Crystallography and Biomineralization,
https://www.mdpi.com/journal/crystals/sections/mineralogical_crystallography_biomineralization
Mineralogical Crystallography Volume II
https://www.mdpi.com/journal/crystals/special_issues/mineralogical_crystallography_ii

Your manuscript has been reviewed by experts in the field. Please find your manuscript with the referee reports at this link:
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(I) Please revise your manuscript according to the referees' comments and upload the revised file within 5 days.
(II) Please use the version of your manuscript found at the above link for your revisions.
(III) Any revisions made to the manuscript should be marked up using the "Track Changes" function if you are using MS Word/LaTeX, such that changes can be easily viewed by the editors and reviewers.
(IV) Please provide a short cover letter detailing your changes for the editors' and referees' approval.

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Please do not hesitate to contact us if you have any questions regarding the revision of your manuscript or if you need more time. We look forward to hearing from you soon.

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24 dari 2.654

Thank you very much for resubmitting the modified version of the following manuscript:

Manuscript ID: crystals-1526077
Type of manuscript: Article
Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *
Received: 10 December 2021
E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id
Submitted to section: Mineralogical Crystallography and Biomineralization,
https://www.mdpi.com/journal/crystals/sections/mineralogical_crystallography_biomineralization
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A member of the editorial office will be in touch with you soon regarding progress of the manuscript.

Kind regards,
Crystals Editorial Office
Postfach, CH-4020 Basel, Switzerland
Office: St. Alban-Anlage 66, CH-4052 Basel
Tel. +41 61 683 77 34 (office)
Fax +41 61 302 89 18 (office)
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23 dari 2.654

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Submitted to section: Mineralogical Crystallography and Biomineralization,
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https://susy.mdpi.com/user/manuscripts/review_info/85a43734d505089bbcd62c6780c299d5

We will continue processing your paper and will keep you informed about the status of your submission.

Kind regards,
Ms. Julia Ding
E-Mail: julia.ding@mdpi.com

--
MDPI Wuhan Office No.6 Jingan Road, 5.5 Creative Industry Park, 25th Floor, Hubei Province, China

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Congratulations on the acceptance of your manuscript, and thank you for your interest in submitting your work to Crystals:

Manuscript ID: crystals-1526077
Type of manuscript: Article
Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *
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Submitted to section: Mineralogical Crystallography and Biomineralization,
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We will now edit and finalize your paper, which will then be returned to you for your approval. Within the next couple of days, an invoice concerning the article processing charge (APC) for publication in this open access journal will be sent by email from the Editorial Office in Basel, Switzerland.

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We also invite you to contribute to Encyclopedia (https://encyclopedia.pub), a scholarly platform providing accurate information about the latest research results. You can adapt parts of your paper to provide valuable reference information, via Encyclopedia, for others both within the field and beyond.

Kind regards,
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Editor-in-Chief

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Crystals Editorial Office <crystals@mdpi.com>
kepada saya, Gerald, Ganang, Deni, Crystals, Julia

Jum, 7 Jan 16.42

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Dear Authors,

When you submitted, you added the following funding information in the system. Your manuscript has now been accepted. Please carefully check and ensure that the funding information is correct in any places where it appears in your manuscript.

Funding information in our system:
Ministry of Education and Culture: B/03/UN43.9/PT.00.03/2020

Manuscript ID: crystals-1526077
Type of manuscript: Article
Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *
Received: 10 December 2021
E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id
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If you have any questions or if you require any modifications, please contact us.

Kind regards,
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Oscar Guo / MDPI <oscar.guo@mdpi.com>
kepada fatah.sulaiman, crystals, saya

10 Sep 2021 11.32

Inggris > Indonesia Terjemahkan pesan   Nonaktifkan untuk: Inggris

Dear Dr. Pramono,

Thank you for submitting your manuscript "Composites Biomaterials based on the use of cow bones processed by self-high propagating temperatures synthesis (SHS)" to the special issue "Crystal Plasticity (Volume II)".
Your paper has been successfully received. I will ask my colleague to further process it as soon as possible. Once enough review reports are received, we will get back to you for revision.

Besides, if you have any other works to be published, we would be happy to receive your other submissions.

Have a nice day and keep in touch.

Best regards,

Oscar

--
Section Managing Editor
E-Mail: oscar.guo@mdpi.com

MDPI Branch Office, Wuhan
5.5 Creative Industry Park, 25th Floor, No.6 Jingan Road, 430064 Wuhan, Hubei Province, China
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Inggris > Indonesia Terjemahkan pesan Nonaktifkan untuk: Inggris ×

Dear Agus Pramono

The editors of the «Broad Exposure to Science and Technology 2021» kindly request you to review the manuscript «Copper Layer on an Aluminum Door Frame to Prevent Spread of Bacteria». To consider the manuscript, you can download it after logging in your account on publisher's website:

URL : https://www.scientific.net
Username : agus.pramono@untirta.ac.id
Password : nYyKK969

After you log in, please select the role 'Reviewer' from the list on the top menu. On the Reviewer Menu, click the Papers tab. The Editors realize that this task requires considerable work, and we thank you for your helpful timely effort.

If you are willing to perform the review of the suggested manuscript, please follow the link I agree to review. In case you are unable to review the manuscript or your involvement may cause a conflict of interest, follow the link I do not agree to review, please find another candidate.

If you have any questions, please contact one of the Editors at your earliest convenience.
Best regards,
Endarto Wardhono
endarto.wardhono@untirta.ac.id

Broad Exposure to Science and Technol... <9783035717723@scientific.net> Rab, 1 Des 2021 12.29
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Inggris > Indonesia Terjemahkan pesan Nonaktifkan untuk: Inggris ×

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The editors of the «Broad Exposure to Science and Technology 2021» kindly request you to review the manuscript «Physical and Mechanical Properties of Twin-Wire Arc Spray and Wire Flame Spray Coating on Carbon Steel Surface». To consider the manuscript, you can download it after logging in your account on publisher's website:

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(II) Please provide a cover letter to explain, point by point, the details of the revisions to the manuscript and your responses to the referees' comments.
(III) If you found it impossible to address certain comments in the review reports, please include an explanation in your rebuttal.
(IV) The revised version will be sent to the editors and reviewers.

If one of the referees has suggested that your manuscript should undergo extensive English revisions, please address this issue during revision. We propose that you use one of the editing services listed at https://www.mdpi.com/authors/english or have your manuscript checked by a native English-speaking colleague.

Do not hesitate to contact us if you have any questions regarding the revision of your manuscript. We look forward to hearing from you soon.

Kind regards,
Aries Gan, MSc
Assistant Editor
Email: aries.gan@mdpi.com
--
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Ups... sistem mengalami masalah (#001) - Mencoba lagi dalam 1 dtk... Coba lagi sekarang Pelajari lebih lanjut

Re: [Crystals] Manuscript ID: crystals-1395829 - additional report

Eksternal Kotak Masuk

Aries Gan <aries.gan@mdpi.com>
kepada Agus, crystals, saya, Fatah, Deni, Anistasia

Kam, 30 Sep 2021 13.46

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Dear Dr. Pramono,

I am writing to kindly inform you that there might be additional report for your manuscript. We send the three collected reports to you in order to process your interesting manuscript in a timely manner. We will send the other report to you right after we receiving it.

Best regards,
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Aries Gan <aries.gan@mdpi.com>
kepada Agus, crystals, saya, Fatah, Deni, Anistasia

Jum, 8 Okt 2021 13.36

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Dear Dr. Pramono,

We notice that you chose "Open Review" for your submission. It means that the review reports and the authors' responses will be published online along with your paper. Please confirm if you do like to choose "Open Review" for your paper. If not, we will help change this option for you.

We look forward to hearing from you.

Best regards,
Aries

agus pramono <agus.pramono@untirta.ac.id>
kepada aries.gan

Jum, 8 Okt 2021 15.16

Dear: Crystal Journal Committee

Currently, I am still completing a fairly long revision, after the revision is complete we will definitely send the manuscript and upload it. May I know when the deadline for the last revision, considering we share the team's performance here. so we also need to speed up the revision.
Thank you for the notification

Best regards,
Agus Pramono

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>>
>> Pada tanggal Sab, 9 Okt 2021 pukul 09.43 Aries Gan
> <aries.gan@mdpi.com <mailto:aries.gan@mdpi.com>
>> <mailto:aries.gan@mdpi.com <mailto:aries.gan@mdpi.com>>> menulis:

agus pramono <agus.pramono@untirta.ac.id>
kepada aries.gan

18 Okt 2021 10.58

Dear: Committee of Crystals Journal,

I want to inform, that the revision has been completed, but it turns out that there are 2 revisions from our team, one is on track but not comprehensive and the other has been completed but the track has been interrupted due to many additions of data engineering to strengthen the hypothesis, according to the reviewer's request.

Can this be uploaded with some additional engineering data,
so that it adds to the page format because there is 1 image and 2 tables added?

Best regards,
Agus Pramono

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crystals-1395829 ...

crystals-1395829 ...

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agus pramono <agus.pramono@untirta.ac.id> 12 Okt 2021 12.56
kepada aries.gan

Dear: Committee of Crystals Journal,

Now that the characterization of materials is complete
Still finishing the sentence on the paper
We Hope this week would be finish

Best regards,
Agus Pramono

Aries Gan <aries.gan@mdpi.com> 12 Okt 2021 12.36
kepada crystals, saya

Inggris > Indonesia Terjemahkan pesan Nonaktifkan untuk: Inggris

Dear Dr. Pramono,

Thank you for letting me know. Once you finish, please directly submit
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https://susy.mdpi.com/user/manuscripts/resubmit/4987aab2e90a97e088098f25deb33fca

Best,
Aries

On 2021/10/12 13:56, agus pramono wrote:
> Dear: Committee of Crystals Journal,
>
> Now that the characterization of materials is complete Still
> finishing the sentence on the paper We Hope this week would be
> finish
>
> Best regards, Agus Pramono
>
> Pada tanggal Sen, 11 Okt 2021 pukul 13.42 Aries Gan
> <aries.gan@mdpi.com <mailto:aries.gan@mdpi.com>> menulis:

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agus pramono <agus.pramono@untirta.ac.id> 11 Okt 2021 12.26
kepada fatah.sulaiman, ayah_tami, Anistasia, Deni, aries.gan

Dear: Committee of Crystals Journal,

Thanks for the information, I am currently doing a re-characterization for microstructure retrieval and exothermic simulation.
Because this is the most crucial thing that the reviewers commented on, so we need to make do the best characteristics for the results
We will work hard to produce the best results,

Best regards,
Agus Pramono

...

Aries Gan <aries.gan@mdpi.com> 11 Okt 2021 13.42
kepada crystals, saya

Inggris > Indonesia Terjemahkan pesan Nonaktifkan untuk: Inggris

Dear Dr. Pramono,

Thank you for your message. We fully understand you would like to do the
best characteristics. May I expect to know your approximate revision
completing date?

Best regards,
Aries

On 2021/10/11 13:26, agus pramono wrote:
> Dear: Committee of Crystals Journal,
>
> Thanks for the information, I am currently doing a re-characterization
> for microstructure retrieval and exothermic simulation.
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7 dari 11

> Authors: Agus Pramono *, Fatah Sulaiman, Deni Shidqi Khaerudini,
> Anistasia
> Milandia *
> Received: 10 September 2021
> E-mails: agus.pramono@untirta.ac.id
> <mailto:agus.pramono@untirta.ac.id>, fatah.sulaiman@untirta.ac.id
> <mailto:fatah.sulaiman@untirta.ac.id>,
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> anistasia.milandia@untirta.ac.id
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>
> Thank you in advance for your kind cooperation and we look forward
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> from you soon.
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agus pramono <agus.pramono@untirta.ac.id>
kepada aries.gan

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Thank you for the notification

Best regards,
Agus Pramono

Aries Gan <aries.gan@mdpi.com>
kepada crystals, saya

9 Okt 2021 09.43

Inggris > Indonesia Terjemahkan pesan   Nonaktifkan untuk: Inggris

Dear Dr. Pramono,

Thank you for letting us know your latest revision progress. We look forward to receiving your revised version soon.

Best regards,
Aries

On 2021/10/8 16:16, agus pramono wrote:
> Dear: Crystal Journal Committee
>
> Currently, I am still completing a fairly long revision, after the
> revision is complete we will definitely send the manuscript and upload
> it. May I know when the deadline for the last revision, considering we
> share the team's performance here. so we also need to speed up the revision.
> Thank you for the notification
>
> Best regards,
> Agus Pramono
>

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agus pramono <agus.pramono@untirta.ac.id> — Jum, 8 Okt 2021 15.16
kepada aries.gan

Dear: Crystal Journal Committee

Currently, I am still completing a fairly long revision, after the revision is complete we will definitely send the manuscript and upload it. May I know when the deadline for the last revision, considering we share the team's performance here. so we also need to speed up the revision.
Thank you for the notification

Best regards,
Agus Pramono

Aries Gan <aries.gan@mdpi.com> — Sab, 9 Okt 2021 09.43
kepada crystals, saya

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Dear Dr. Pramono,

Thank you for letting us know your latest revision progress. We look forward to receiving your revised version soon.

Best regards,
Aries

On 2021/10/8 16:16, agus pramono wrote:
> Dear: Crystal Journal Committee
>
> Currently, I am still completing a fairly long revision, after the
> revision is complete we will definitely send the manuscript and upload
> it. May I know when the deadline for the last revision, considering we
> share the team's performance here. so we also need to speed up the revision.
> Thank you for the notification
>
> Best regards,
> Agus Pramono
>
> Pada tanggal Jum, 8 Okt 2021 pukul 13.32 Crystals Editorial Office

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kepada aries.gan

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Thank you for the notification

Best regards,
Agus Pramono

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kepada crystals, saya

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Best regards,
Aries

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Paper has been uploaded

agus pramono <agus.pramono@untirta.ac.id>

kepada aries.gan, fatah.sulaiman, ayah_tami

Sel, 19 Okt 2021 08.03

Dear: Committee of Crystals Journal,

I have completed the full revision with the team, and have uploaded the revised according to the reviewer's instructions. For the next, I would be waiting for directions from you

Thank you for your cooperation, hopefully, the paper will be published soon

Best regards,

Agus Pramono

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agus pramono <agus.pramono@untirta.ac.id>
kepada aries.gan

20 Okt 2021 12.45

Dear: Mr. Aries
Committee of Journal Crystals

Here I send the Authorship Change Form
Thank you for your attention and coordination in the paperwork process
Hopefully, the paper will be published soon

Best regards,
Agus Pramono

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Re: [Crystals] Manuscript ID: crystals-1395829 - Authorship Change Form Eksternal Kotak Masuk

Crystals <crystals@mdpi.com> Sel, 19 Okt 2021 14.44
kepada Agus, saya, Fatah, Deni, Anistasia

Dear Dr. Pramono,

We hope you are well. The revised manuscript was well received. We noticed that the authorship was changed. As per our policy, please sign the Authorship Change Form (see attachment). After that, we will process your manuscript further soon. Many thanks for your great support.

Looking forward to your reply.

Best regards,
Richard Li
Managing Editor, MDPI Wuhan

MDPI Branch Office, Wuhan
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Thank you for your understanding. | Great, thank you so much! | Thank you very much.

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On 2021/10/28 15:05, agus pramono wrote:
> Dear: Committee of Journal Crystals,
>
> I have uploaded the latest paper, there are some data corrections and
> analysis related to the paper to suit its scope
> We have also corrected the title to "Synthesis of spinel-hydroxyapatite
> composite utilizing bovine bone and beverage can"
>
> Thank you for your cooperation, hopefully, it will be published soon
>
> Best regards,
> Agus Pramono
>
> Pada tanggal Sen, 25 Okt 2021 pukul 09.52 Crystals Editorial Office
> <crystals@mdpi.com <mailto:crystals@mdpi.com>> menulis:
>
> Dear Dr. Pramono,
>
> I am writing to you concerning the manuscript you recently submitted to
> Crystals. Based on the review reports, the manuscript is not
> suitable for
> publication in Crystals in its present format. Significant revisions
> or new
> data are required in the manuscript to warrant further consideration
> for
> publication of this manuscript in Crystals.
>
> Manuscript ID: crystals-1395829
> Type of manuscript: Article
> Title: Composites Biomaterials based on the use of cow bones
> pro-cessed as
> Metal Matrix Composites (MMC)
> Authors: Agus Pramono *, Anistasia Milandia *, Fatah Sulaiman, Deni
> Shidqi
> Khaerudini
> Received: 10 September 2021
> E-mails: agus.pramono@untirta.ac.id
> <mailto:agus.pramono@untirta.ac.id>,

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aries.gan@mdpi.com

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agus pramono <agus.pramono@untirta.ac.id>
kepada aries.gan

28 Okt 2021 14.05

Dear: Committee of Journal Crystals,

I have uploaded the latest paper, there are some data corrections and analysis related to the paper to suit its scope
We have also corrected the title to "Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can"

Thank you for your cooperation, hopefully, it will be published soon

Best regards,
Agus Pramono

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Agus Pramono_S...

Aries Gan <aries.gan@mdpi.com>
kepada crystals, saya

28 Okt 2021 15.34

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Dear Dr. Pramono,

Thank you very much for letting me know. We will continue to process your manuscript entitled "Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can" soon.

Best regards,
Aries

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Manuscript ID: crystals-1457676
Type of manuscript: Article
Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *
Received: 26 October 2021
E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id

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Manuscript ID: crystals-1457676
Type of manuscript: Article
Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *
Received: 26 October 2021
E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id

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Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *
Received: 26 October 2021
E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id

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Type of manuscript: Article
Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *
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E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id

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Journal name: Crystals
Manuscript ID: crystals-1526077
Type of manuscript: Article
Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *
Received: 10 December 2021
E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id

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Journal: Crystals
Manuscript ID: crystals-1526077
Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *

Received: 10 December 2021
E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id

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Manuscript ID: crystals-1526077
Type of manuscript: Article
Title: Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can
Authors: Agus Pramono *, Gerald Ensang Timuda *, Ganang Pramudya Ahmad Rifai, Deni Shidqi Khaerudini *
Received: 10 December 2021
E-mails: agus.pramono@untirta.ac.id, gerald.ensang.timuda@brin.go.id, ganangpramudya@gmail.com, deni.shidqi.khaerudini@brin.go.id

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Synthesis of spinel-hydroxyapatite composite utilizing bovine bone and beverage can

Agus Pramono [1,*], Gerald Ensang Timuda [2,*], Ganang Pramudya Ahmad Rifai [1], and Deni Shidqi Khaerudini [2,*]

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Abstract: Spinel-based hydroxyapatite composite (SHC) has been synthesized utilizing bovine bones as the source of the hydroxyapatite (HAp) and beverage cans as the aluminum (Al) source. The bovine bones were defatted and calcined in the air atmosphere to transform them into hydroxyapatite. The beverage cans were cut and milled to obtain fine Al powder and then sieved to obtain three different particle mesh size fractions: +100#, -140#+170#, and -170#. The SHC was synthesized using the self-propagating intermediate-temperature synthesis (SIS) method at 900 oC for 2 h with (HAp : Al : Mg) ratio of (87 : 10 : 3 wt.%) and various compaction pressure of 100, 171, and 200 MPa. It was found that the mechanical properties of the SHC are influenced by the Al particle size and the compaction pressure. Smaller particle size produces the tendency of increasing the hardness and reducing the porosity of the composite. Meanwhile, increasing compaction pressure produces a reduction of the SHC porosity. The increase of the hardness is also observed by increasing the compaction pressure except for the smallest Al particle size (-170#), where the hardness instead becomes smaller.

Keywords: hydroxyapatite composite, spinel, beverage cans, bovine bones

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1. Introduction

Hydroxyapatite is an important biomedical implant material. It is the natural bone's inorganic component [1], has a good osteoconductivity, biocompatibility, and bioactivity, thus makes it easily incorporated into the bones [1–3]. However, the utilization of chemically synthesized hydroxyapatite for hard tissue replacement is limited because it is expensive while large quantity of material is required [3]. Furthermore, synthesized hydroxyapatite has different physicochemical properties (such as strength and chemical composition) than the natural one, leading to lower biological activity [4,5]. Therefore, extracting hydroxyapatites from biological materials has been considered to provide a cheaper and up-scalable alternative synthesis route, and to obtain physicochemical properties as close as those of the natural hydroxyapatite. Several biological materials have been reported as the source of the hydroxyapatite, such as bovine bone [3,6], fish scale [4,7], snail shell [2,8], and eggshell [9,10]. Bovine bone can be considered as a biological waste that needs to be recycled. Therefore, its processing into hydroxyapatite is economically and ~~environtmentally~~environmentally beneficial.

To further improve the mechanical properties of hydroxyapatite, it can be synthesized into a composite with metal/alloys [11–14], metal oxides [5,15–17], or polymer [1,18]. The composite of hydroxyapatite (SHC) with a single metal element such as in Mg/HAp system was considered to combine both advantages of biocompatibility and biodegradability in Mg and bioactivity in HAp [11,14]. Improvement of the mechanical properties such as hardness and compression strength ha~~ve~~s been reported in the Mg/HAp composite compared to pure HAp [14]. However, the Mg/HAp system is more prone to corrosion than the alloy matrix [11]. Therefore, addition of other metal as an alloying component was considered to improve the corrosion properties, such as in Mg-Sn/HAp [11] or Mg-Ca/HAp [13]. Similarly, composite of HAp with metal oxides such as ZrO_2, TiO_2, Al_2O_3 [5], or MgO [17] were considered as the reinforcement to improve the HAp's mechanical stability [5]. Furthermore, bio-inert material such as the Al_2O_3 poses no harmful~~l~~ effect on human body [5].

In this study, the composite of HAp with two metal components, Al and Mg, is reported. The HAp source is provided by the ~~recyclced~~recycled bovine bone. The Al source is supplied from recycled ~~baverage~~beverage cans which was reported to contain 93 – 97% of Al [19–21]. The metal components are prone to oxidation due to the presence of oxygen in the ~~environtment~~environment during heating process thus lead to formation of a ~~unique HAp-MgO-Al_2O_3-$MgAl_2O_4$/HAp composite~~spinel ($MgAl_2O_4$) based composite. The introduction of $MgAl_2O_4$ has been reported to improve the phase stability of HAp during sintering [16]. The effect of Al particle size and compaction pressure on the mechanical properties of the composite is discussed.

2. Materials and Methods

2.1. Bovine Bones Treatment

Bovine bones (leg part) were used as the hydroxyapatite (HAp) source material and were obtained from local markets in Jakarta, Indonesia. The bones were defatted by twice boiling for 2 h followed by washing under running water, then dried ~~in~~ below the ~~sun~~ Sun for 8 h. The dried bones were then cut into small pieces by the grinder and calcined at 850 ^{o}C for 2 h. Afterward, it was disk milled for 20 s to obtain the HAp powder.

2.2. Aluminum Cans Treatment

Aluminum (Al) and magnesium (Mg) were used as the metal component in the composite. In this study, the Al was provided from recycled beverage cans. The cans were square cut to 1 x 1 cm^2 then disk milled for 15 min with the on:off interval time of 1:2 (min/min), producing Al powder. Its purity content was then characterized by the X-ray fluorescence (XRF, S2 PUMA Bruker). The powder was then sieved with the sieve sizes of 100#, 140#, and 170# to obtain three different particle size fractions of +100#, -140#+170#, and -170#, respectively.

2.3. Self-propagating Intermediate-temperature Synthesis (SIS)

A mixture of HAp, Al, and Mg (Merck, 99% purity) powders with the ratio of (87 : 10 : 3 wt.%) was prepared using a shaker mill for 10 min. The mixture was then pelleted with different compaction pressures of 100, 171, and 200 MPa. The 9 different compositions of pellets were prepared from the variation of Al particle sizes and compaction pressures. Afterward, each pellet was put in the SIS vessel which was then heated at 900 oC for 2 h. The SIS vessel is specifically designed so that when undergoing heat treatment in the furnace, the heat propagation can only come from one specific surface instead of from all surfaces in the conventional heat treatment case. In this way, the heat propagation and distribution in the sample became more controllable and homogenous. More detailed information about SIS method is presented in the **Supplementary Information**.

After cooling down, the hydroxyapatite-composite (SHC) samples in the SIS vessel were taken out then polished by sandpaper and characterized using Archimedes porosity

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test, Vickers hardness test (LECO, LM 100 AT), X-ray diffraction (XRD, Smart Lab Rigaku, with the source of Cu-Kα), and scanning electron microscopy equipped with Energy X-ray Dispersion Spectroscopy (SEM-EDS, SU-3500 Hitachi, Oxford Instruments Aztech One)~~, and X-ray diffraction (XRD, Smart Lab Rigaku, with the source of Cu-Kα)~~.

3. Results and Discussions

The hydroxyapatite composite (SHC) synthesized in this study consists of hydroxyapatite (HAp), aluminum (Al), and magnesium (Mg) as the bio-ceramic matrix, reinforcement, and wetting agent, respectively. The HAp was extracted from the bovine bones. ~~The process needs the bones to be defatted, dried, cut, calcined, and milled to obtain the HAp powder needed for the SHC synthesis.~~ Figure 1 shows the visual appearance of the defatted bovine bones after calcination at 850 °C. It can be seen that in an inert condition, the bones looked burnt and charred (Figure 1a), indicating the formation of carbon instead of the desired HAp. This is because heating in a low or no oxygen atmosphere can lead to pyrolysis resulting in carbonization of the bones [22]. On the other hand, the bones calcined in the air atmosphere have a white color (Figure 1b), indicating the formation of the desired HAp [3,23]. The air-calcined bones also lose their previous stickiness feels, indicating the removal of the remaining fat unable to be removed from the previous defatting process. The XRD of the air-calcined bones is shown in Figure 2 where a HAp phase with 100% purity is observed. The XRD ~~graphs~~patterns of other HAp from different batches are shown in the **Supplementary Information**, showing similar pattern results indicating a good reproducibility. The air-calcined bones were then crushed in the ~~ring~~ disk milling to obtain the HAp powder used for the next step of the composite synthesis.

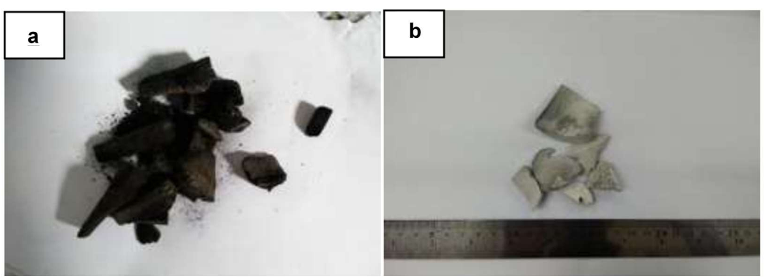

Figure 1. Photograph of bovine bones after calcination in (a) inert nitrogen gas, and (b) air atmosphere.

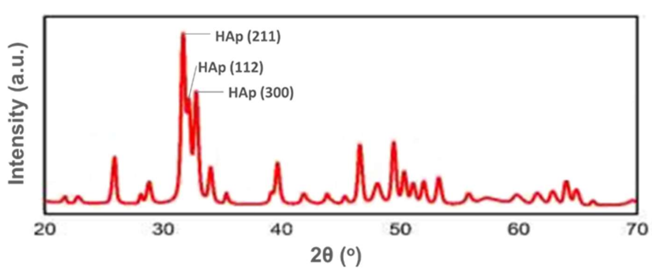

Figure 2. X-ray diffractogram of the HAp-based bovine bones after calcination in air atmosphere.

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Al is the metal used in the composite here as a reinforcement to improve the mechanical properties of the HAp bio-ceramic. In this study, the Al source was taken from recycled beverage cans. The recycling process includes cutting the cans and then crushing them in the ~~ring~~ disk milling. After milling, the purity of the crushed powder was characterized using XRF (Table 1). The Al content is at 91.90 ± 1.50 %, which is slightly smaller than those reported in the literature (about 93-97% [19–21]). This may come from the paint coating of the can's exterior which was not removed before being recycled. For application as the reinforcement in the composite, the Al powder was further sieved to obtain a finer and homogenous particle size. ~~Three different sieve sizes were used: 100#, 140#, and 170#, correspond to particle sizes of +100#, -140#+170#, and -170#, respectively.~~ The smaller the particle size is supposed to give a better homogeneity of the particle's distribution, better bonding among the composite's components, and an increase of the composite's density [24]. Therefore, it is a crucial factor that determines the quality of the composite and is further studied in this report.

Table 1. XRF elemental composition of the Al powder recycled from the beverage can.

Elements	Percentage (%)	Elements	Percentage (%)
Al	91.90 ± 1.50	Ni	0.06 ± 0.02
Mn	3.20 ± 0.40	Zr	0.03 ± 0.03
Si	2.80 ± 0.80	Ti	0.02 ± 0.09
Fe	1.39 ± 0.19	Zn	0.01 ± 0.01
Cu	0.62 ± 0.12		

For the hydroxyapatite-composite (SHC) synthesis, the HAp, Al, and Mg powders (87 : 10 : 3 wt.%) were homogenously mixed which were then pelleted before being heated inside the SIS vessel. The compaction pressure is an important parameter in the SIS method [25]. ~~In this study, three different compaction pressures are studied: 100, 171, and 200 MPa. 9 SHC samples are studied to evaluate~~Here, ~~-~~the effect of the~~se~~ variation~~s~~ of the Al particle size and the compaction pressure on the properties of the SHC is studied.

~~Table 2 and~~ Figure 3 shows the effect of these variations on the hardness and porosity of the SHC produced. The largest hardness (44.92 HV) is obtained by the smallest particle size (-170#). ~~And, t~~The largest porosity (34.36%) is produced by the biggest particle size (+100#). Both with the same compaction pressure of 100 MPa. On the other hand, the smallest hardness (8.36 HV) is produced by the biggest particle size (+100#, with the compaction pressure of 100 MPa). ~~And~~Meanwhile, the smallest porosity (19.82 %) is obtained by the smallest particle size (+170#, with the compaction pressure of 200 MPa). In general, for the same value of compaction pressure, there is a tendency that the smaller the Al particle size produces larger hardness and smaller porosity of the composite. This is in accord with the expectation that the smaller particle size can be homogenously distributed in the mixture and increase the composite's density [24], which is shown by the smaller porosity and larger hardness. However, if evaluating the value of each Al particle size group, the tendency is not consistent for all cases. For most of the cases, the larger the compaction pressure tends to give a larger hardness and a smaller porosity. The exception is for the smallest size-fraction (+170#) where the larger the compaction pressure instead gives the smaller hardness (dashed lines in Figure 3a). The trend tendency of the porosity, on the other hand, is more consistent (Figure 3b). The reason for the deviation of the hardness trend is unconfirmed at the present but might be related to the formation of the oxides, which will be discussed later. The largest hardness obtained in this study (44.92 HV) is close to those of the human teeth dentin's (46 – 64 HV [26,27]) and human cortical bone's (40.38 HV [28]). However, its porosity is at 31.12 % while the human cortical bone's one needs to be less than 30% [29]. Some samples fulfilled the porosity criteria for the cortical bone in this study such as (-140#+170#) 171 MPa and (-170#) 171 MPa with the porosity of 29.45 and 28.58 %, respectively, but their hardness values are much lower than the criteria (at 22.15 and 34.52, respectively). However, judging the trend of the hardness and porosity in the -170# group, it can be projected that the criteria of hardness at around 40 HV with the porosity of less than 30% is possible to be obtained using a compaction pressure between 100 and 171 MPa.

~~**Table 2.** Hardness and porosity of the hydroxyapatite composite~~

~~Al Particle Size-Fraction~~	~~Compaction Pressure (MPa)~~	~~Hardness (HV)~~	~~Porosity (%)~~
~~+100#~~	~~100~~	~~8.36~~	~~34.36~~
	~~171~~	~~13.24~~	~~32.01~~
	~~200~~	~~15.68~~	~~26.71~~
~~-140#+170#~~	~~100~~	~~18.07~~	~~30.60~~
	~~171~~	~~22.15~~	~~29.45~~
	~~200~~	~~27.33~~	~~26.97~~
~~-170#~~	~~100~~	~~44.92~~	~~31.12~~
	~~171~~	~~34.52~~	~~28.58~~
	~~200~~	~~25.49~~	~~19.82~~

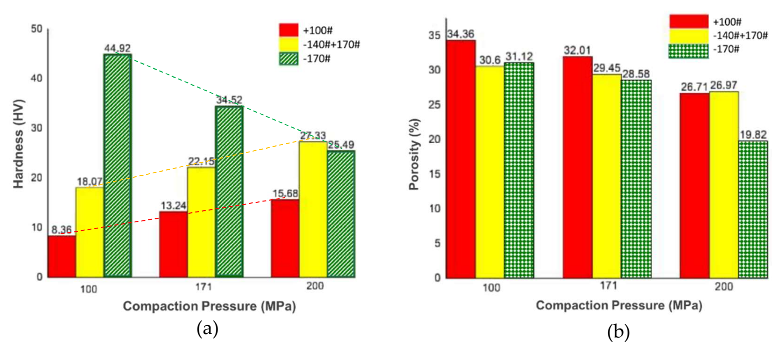
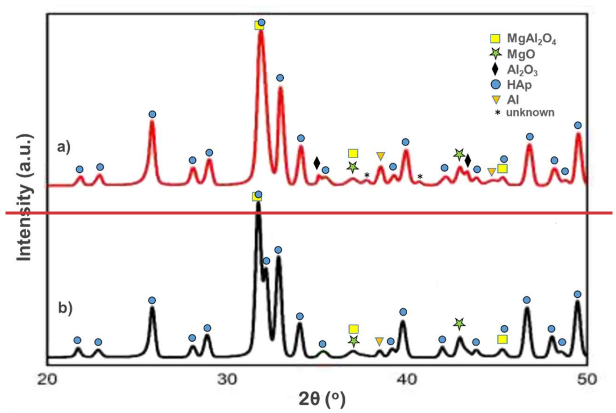


Figure 3. Bar-charts of the (a) hardness and (b) porosity of the hydroxyapatite-composite as a function of Al particle size-fraction and compaction pressure. Dashed lines are for guide to the eye.

Figure 4 shows the XRD of the SHC made by the compaction pressure of 100 MPa with the Al particle size-fraction of -170# and +100#. Both samples show the formation of oxides in the form of magnesia (MgO), and spinel ($MgAl_2O_4$) beside the hydroxyapatite. The formation of the oxides is because the SIS heating was performed in a non-vacuum furnace and without flowing an inert gas too. Therefore, there was air trapped in the SIS vessel which allows oxidation of the metal components. However, for the Al particle size-fraction of -170#, there is an extra alumina (Al_2O_3) peaks detected (Figure 4a). This indicates that in the case of smaller Al particle size (-170#), the oxidation of the Al metal into alumina is easier compared to those of spinel. On the other hand, for bigger Al particle size (+100#), the oxidation of Al metal is more favorable toward into the spinel formation, as shown by the presence of Al and spinel peaks but in the absence of alumina (Figure 4b). Alumina is a known bioceramics for medical applications, such as in dental applications (i.e. orthodontic brackets, dental implants, fixed prostheses, and bone cement filler) [30], or joint replacements [31]. The presence of alumina has also been reported to increase the hardness of a composite [32]. The presence of alumina might be responsible for the increase of the hardness observed from 8.36 to 44.92 HV for +100# and -170#, respectively.



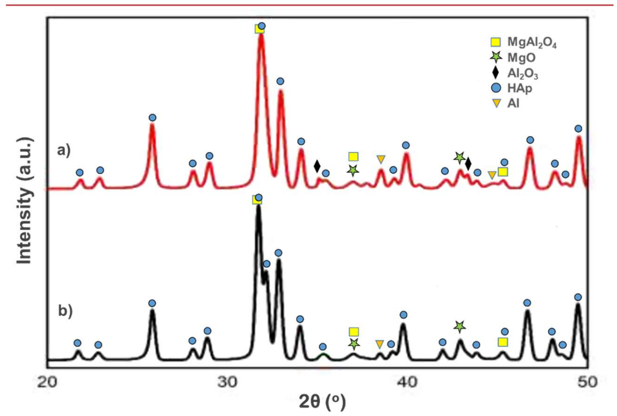


Figure 4. XRD of the hydroxyapatite-composite made by compaction pressure of 100 MPa and Al particle size-fraction of (a) -170# and (b) +100#.

Another possibility of the increase of hardness is coming from the increase of crystallinity of the HAp [33]. The HAp peak at (112) in the +100# sample is relatively taller compared to the -170# one, indicating its higher crystallinity. The higher the HAp crystallinity instead produce smaller hardness value in this study, opposite as those reported by Ref.

[33]. This indicates that the effect of Al_2O_3 formation on the composite's hardness is more dominant.

Figure 5 shows the XRD of the hydroxyapatite-composite made using the smaller Al particle size-fraction (-170#) with different compaction pressures of 100 and 200 MPa. As explained above, for 100 MPa case, the peaks of alumina and Al metal can be observed (Figure 5b). However, increasing the pressure to 200 MPa completely transform Al metal into the $MgAl_2O_4$ spinel, as shown in the absence of both alumina and Al metal peaks (Figure 5a). This explains the decrease of the hardness of the 200 MPa sample compared to the 100 MPa one (25.49 and 44.92 HV for 200 and 100 MPa samples, respectively), even though the higher pressure supposes to increase the density (as shown by the smaller porosity in Table 2 and Figure 3b) which eventually increase the hardness. This indicates that for the hydroxyapatite composite made of smaller Al particle size (-170#) in this study, the presence of alumina is crucial in increasing its mechanical properties (hence the hardness). The HAp peak at (112) of the 200 MPa sample is relatively taller than those of 100 MPa sample, indicating its higher crystallinity. Again, like in the above case, the higher HAp crystallinity instead ~~produce~~produces smaller hardness, indicating that the effect of Al_2O_3 formation on the hardness is more dominant.

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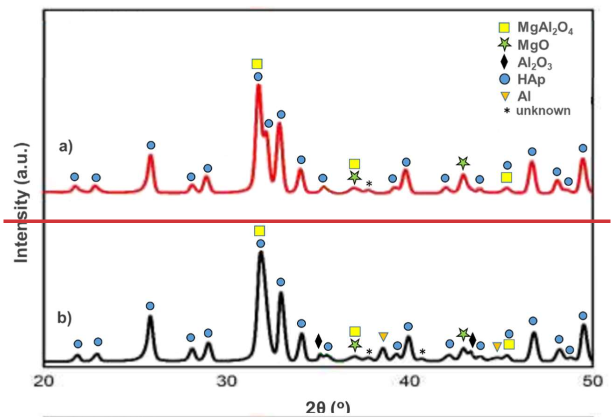


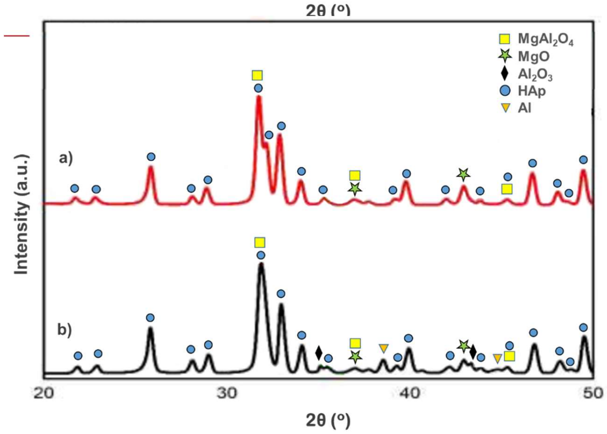
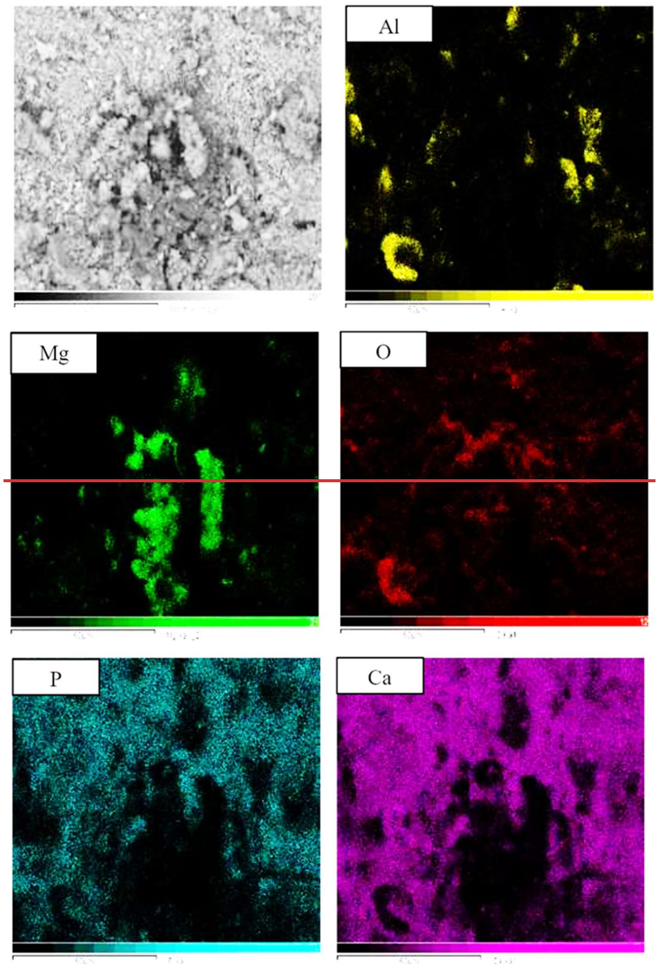


Figure 5. XRD of the hydroxyapatite-composite made using Al particle size-fraction of -170# and compaction pressure of (a) 200, and (b) 100 MPa.

~~Figure~~Figures 6 and 7 show the SEM-EDS pictures of the SHC made by compaction pressure of 100 MPa and Al size-fraction of -170# and +100#, respectively. It can be seen that for each ~~cases~~case, the Ca and P have almost similar distribution, indicating the formation of the hydroxyapatite. The Ca/P ratio for the two samples, calculated from the elemental composition derived from the EDS measurements (Table ~~3~~2), are almost similar at 1.47 and 1.46 for -170# and +100#, respectively, slightly smaller than those of a pure hydroxyapatite at 1.67 [34].



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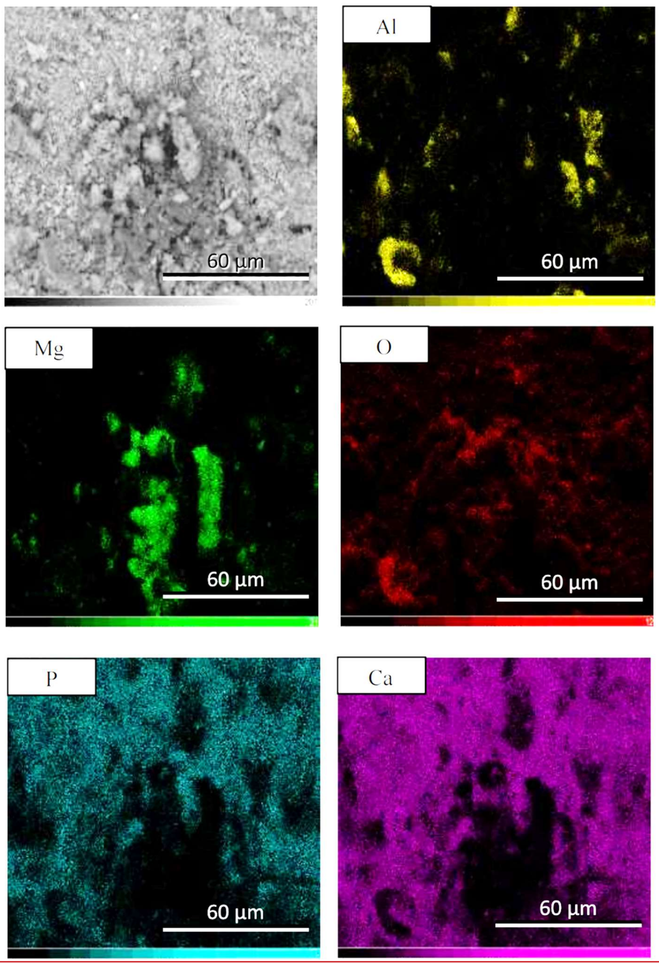

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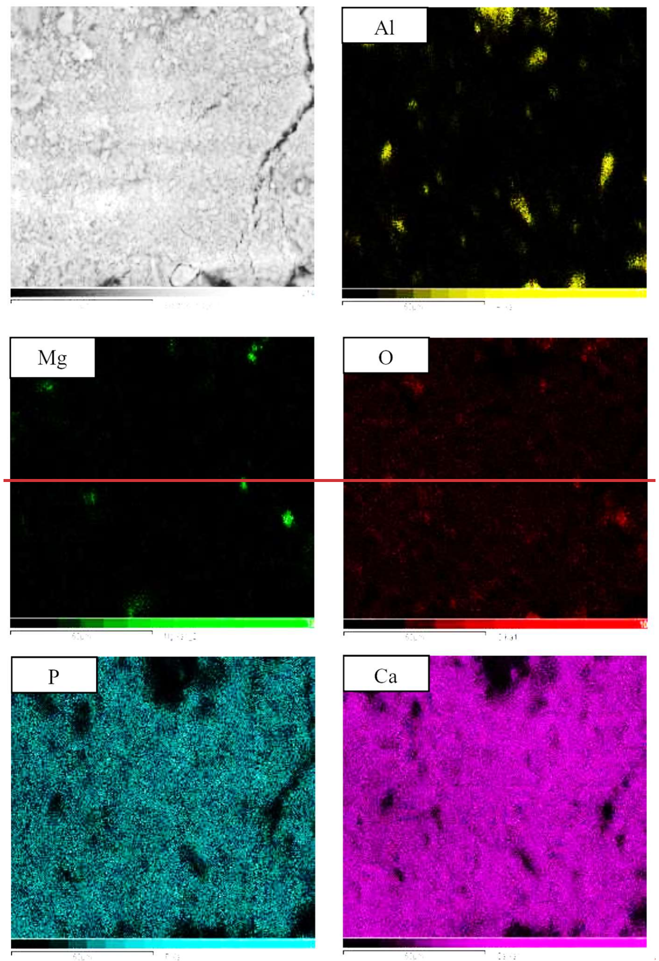
Figure 6. SEM-EDX pictures of the hydroxyapatite composite made by Al size-fraction of -170# with 235
compaction pressure of 100 MPa. 236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Ca

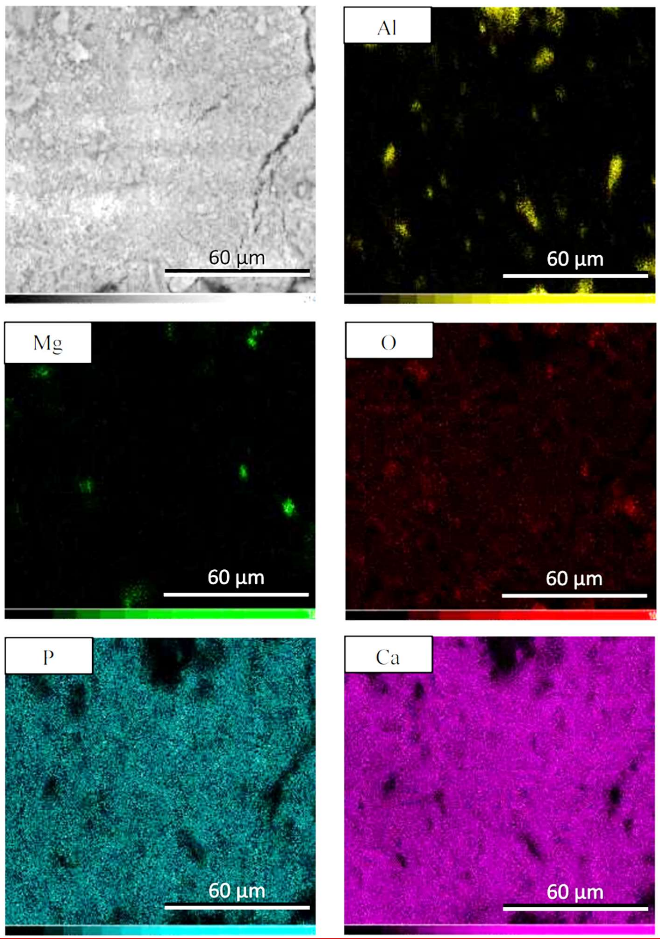

Figure 7. SEM-EDS pictures of the hydroxyapatite composite made by Al size-fraction of +100# with compaction pressure of 100 MPa.

Table ~~1~~2. Elemental composition derived from the EDS measurements of the hydroxyapatite composite made by Al size-fraction of -170# and +100# with the compaction pressure of 100 MPa.

Elements	at.%	
	-170#	**+100#**
O	66.75	66.60
Mg	2.47	2.12
Al	2.46	4.22
P	11.45	10.20
Ca	16.87	14.86
Total	100.00	100.00

4. Conclusions

We have successfully synthesized spinel-based hydroxyapatite composite (SHC) using bovine bones and beverage cans as hydroxyapatite and aluminum (Al) metal sources, respectively, using self-propagating intermediate-temperature synthesis (SIS) method. Aluminum particle size and compaction pressure play important roles in determining the mechanical properties of the SHC. Decreasing the Al particle size tends to increase the hardness and reduce the porosity of the SHC. Increasing compaction pressure also tends to decrease the porosity of the SHC. On the other hand, for hardness value, tendency of it to increase as the compaction pressure is increased only apply for the bigger Al particle sizes. For the smallest Al particle size, the higher the compaction pressure instead decrease the hardness value. This is probably related ~~with~~ to the presence of the alumina in the smaller pressure which contribute to the improvement of the composite's mechanical properties.

Author Contributions: Conceptualization, Deni Shidqi Khaerudini; Data curation, Gerald Ensang Timuda; Formal analysis, Ganang Pramudya Ahmad Rifai and Deni Shidqi Khaerudini; Funding acquisition, Agus Pramono; Investigation, Ganang Pramudya Ahmad Rifai and Deni Shidqi Khaerudini; Methodology, Agus Pramono and Deni Shidqi Khaerudini; Supervision, Agus Pramono, Gerald Ensang Timuda and Deni Shidqi Khaerudini; Validation, Agus Pramono, Gerald Ensang Timuda and Ganang Pramudya Ahmad Rifai; Visualization, Agus Pramono; Writing – original draft, Gerald Ensang Timuda; Writing – review & editing, Agus Pramono and Deni Shidqi Khaerudini.

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Response to Reviewer 2 Comments

The present work is aimed at synthesizing a spinel-based hydroxyapatite composite and evaluating mechanical properties in relation to the arming agent. There are several aspects that would require attention, regarding both form and substrate:

Point 1: For the form, the English language should be improved; ex:

Row 40: bovine bone .... that ”needs” to be recycled; Row 48: ”has” been reported; Row 54: ”harmful”; Row 227: …play important ”roles”… ; Row 233: …this is probably related ”to” the presence..

Response 1: Thanks for your remarks. It is modified according to the remarks.

Point 2: Still regarding form, at 3. Results and discussions there are several places where info from previous sections is repeated - ex: The HAp was extracted from bovine bones; the process needs the bones to be defatted, dried, cut … ; Three different sieve sizes were used: 100#, 140#, and 170# etc.

Response 2: Thank you very much for your comments. We have deleted and rephrase sentences in the Section 3 which contain info in the previous section.

Regarding substrate, I have 4 observations:

Point 3: 1. From what the final part of the introduction and later results and discussions present, the composite is made out of MgO-Al2O3-MgAl2O4-HAp and in 2.2., it is stated that Al and Mg were used as the metal component in the composite. I would advise reformulations wherever metallic components of the composites appear. At a first glance, it misleads the reader.

Response 3: Thank you for your remarks. Now, the term of “MgO-Al2O3-MgAl2O4-HAp” has been reformulated into “HAp-spinel ($MgAl_2O_4$) based composite”.

Point 4: 2. At 2.3. Self-propagating Intermediate-temperature Synthesis (SIS), it is not obvious how can the heat propagation from one specific surface (instead of from all surfaces) induce a more homogenous heating (I advise a reference here); in regard to this observation, it is somehow unclear what benefits come from the SIS processing compared to conventional heating, microwave heating, hydrothermal processing and why this technique was selected. More data from the literature is required here.

Response 4: Thank you very much for your comment. Now, the detail of the SIS method is presented in the Supplementary Information section.

Point 5: 3. Considering the fact that the main compound of this work contains a relatively large amount of Al (10%), as a form of Al2O3 or MgAl2O4, a reader will find it necessary to find a more comprehensive justification for the use of Al in a HAp composite, more than the fact that Al2O3 poses no harmful effect on the human body. What benefit does it bring towards HAp? How does the literature describe the effect of different contents of Al/Al2O3/MgAl2O4 upon a HAp composite?

Response 5: Thank you very much for your comment. The addition of Al leads to the formation of Al_2O_3 which can improve the hardness of the composite (10.1007/s12034-018-1612-4). And, together with Mg, they lead to the formation of the $MgAl_2O_4$ which can improve the phase stability of the HAp during sintering (doi: 10.1111/jace.13556). This explanation has been added in the introduction section.

Point 6: 4. In the results and discussion section, it is stated that Al is the metal used in the composite as a reinforcement to improve the mechanical properties of the HAp ceramics. Although initial X-ray analysis was performed on the HAp obtained from bovine bones, there is no compaction pressure nor hardness performed on the reference sample, required to evaluate the effect that Al has in reinforcing the ceramic. A reference sample without Al/Mg is needed here.

Response 6: Thank you very much for your comment. Indeed, we already did make the samples without addition of Al or Mg, however they were always break after heating. So, the addition of Al and Mg is crucial in the reinforcing the composite.

Response to Reviewer 3 Comments

Hydroxyapatite for medical purposes needs to be very well characterised. A rigorous control of the quality is indispensable. There are a lot of questions regarding this research work:

Point 1: 1. the Hap obtained from bovine bone was not enough charcterized (e. g. Fig 2!)

Response 1: Thank you very much for your comment. In Figure 2 we present the XRD of the heat-treated bovine bone as the HAp source, which we already shown and explained in the text that it consisted of 100% HAp according to the XRD analysis. We consider that it is enough for this stage, since this is not yet the final product of this study, for it will be further used to synthesize the spinel-HAp composite.

Point 2: 2. how the authors insure the constant and same quality of Hap from bovine bone?

Response 2: Thank you very much for your comment. We have produced several batches of HAp from bovine bones obtained from the same source (the same local market), especially in this work we use the leg part of the bovine bone, which have relatively similar XRD pattern. Therefore, we are sure that the method is reproducible in producing HAp for spinel-HAp composite synthesis. There is a possibility that different result might be produced from different source of bovine bone, however, it is beyond the scope of the current study.

Point 3: 3. On Fig. 4 there or "unknown" peaks! It is not allowed in a research paper! For medical purposes the raw materials and the products need to be well characterised and the preparation method to be reproducible!

Response 3: Thank you very much for your comment. We have removed the label “unknown” in the XRD graphs according to your suggestion. We appreciate your remark about well characterization and reproducible product. We notice that there are various characterizations to elaborate further prior to implementation of biomedical application, such as in vivo study and clinical trial. However, this study is still at a very early stage, and those points are beyond the scope of the current study.