Review Form 3

Journal Name:	**Journal of Energy Research and Reviews**
Manuscript Number:	**Ms_JENRR_124446**
Title of the Manuscript:	**Effect of Calcination Temperature on the Structural and Catalytic Efficiency of APSR-Derived CaO for Biodiesel Production**
Type of the Article	

Review Form 3

PART 1: Review Comments

Compulsory REVISION comments	**Reviewer's comment**	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	The manuscript presents the study on the development of CaO alkali catalyst derived from biobased low-cost biobased feedstock known as African Periwinkle Shell Residue, (APSR) at different calcination temperature and its performance on transesterification reaction for biodiesel synthesis was evaluated. However, the manuscript lacks the scientific soundness.	
Is the title of the article suitable? (If not please suggest an alternative title)	**yes**	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	**yes**	
Are subsections and structure of the manuscript appropriate?	**The subsection and structure of the manuscript is appropriate but it lacks detailed reports on characterisations of materials and also for the biodiesel prodcut**	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	**The Manuscript lack scientific robustness and technical soundness**	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	**The references are not sufficient and upto date** **SEE ATTACHMENT**	

Review Form 3

Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	yes	
Optional/General comments	Journal Name: **Journal of Energy Research and Reviews** Title of the Manuscript: **Effect of Calcination Temperature on the Structural and Catalytic Efficiency of APSR-Derived CaO for Biodiesel Production** Reviewer Comment (**Ms_JENRR_124446**) The manuscript presents the study on the development of CaO alkali catalyst derived from biobased low-cost biobased feedstock known as African Periwinkle Shell Residue, (APSR) at different calcination temperature and its performance on transesterification reaction for biodiesel synthesis was evaluated. Here are my comments: 1. In the introduction part of second paragraph, it is suggested that the authors have to rewrite 'A Calcination temperature'…, as 'A calcination temperature'…, 2. By considering only two calcination temperatures (at 900 oC and 1000 oC), it is not clear how the authors studies to achieve the optimum conditions for biodiesel synthesis? **3.** In section 2 of subsection 2.1, it is suggested that the authors have to note the grammatical, type setting and generally improves the language expression, for instance for the text refers to 'African Periwinkle shell residue (APSR) was sourced for from one of the regions (Ebute-pare, $6^{o}21^{1}$N $4^{o}47^{1}$E) in Ondo State, because of their abundance in **these region'**. It should be written in '**this region** or **these regions'** **4.** During the synthesis of CaO biocatalyst from APSR at 900 and 1000 oC, the heating rate was not mentioned as it affects the product quality and quantity. The authors, please note this 5. It was mentioned that EDX, SEM, XRD, TGA, and FTIR were employed for the characterization of synthesized CaO biocatalysts (section 2.3). However, the authors haven't disclosed their results (images and graphs) under results and discussions (section 3) excepts for FTIR. The authors, please include these data with their thorough interpretation/analysis 6. Authors, please change the text refers to 'Catalytic strength of the APSR derived CaO Biocatalyst' in section 2.4 to 'Catalytic performance of the APSR derived CaO Biocatalyst'. Please note this to replace 'catalytic strength' by 'catalytic performance' throughout this manuscript 7. In Fig.3, it is suggested that the authors have to express the Y-axis in more general form as 'mass % 'rather than 'mass fraction wt%'. because mass fraction is unitless as it is a fraction of numbers between 0 and 1. So, please change the text refers to 'percentage mass fraction of calcium (Ca)' etc., to 'mass % of calcium (Ca)' etc., under section 3.1 and entirely in this manuscript if any. 8. In section 3.2, the authors disclosed the effects of calcination temperatures on morphological character of CaO catalyst using particle sizes (Fig.4) and particles area (Fig.5) by plotting frequency Vs particle size/area. How did you measure the particles size and area? From SEM? Where is the catalysts SEM images? Moreover, under this section, the text refers to 'This implies that the particle size in the micrograms changes with increase in temperature.' It should not be a microgram but it should micrometer. Please note the modification 9. In section 3.2, page -6, the text refers to 'It was similarly observed that the morphology at both temperatures exhibits a microporous nature'. Please support it with any of characterization	

Review Form 3

	results from TEM/SEM that tell us the porous nature of synthesized CaO materials or suggest modification 10. In Fig.6, it is unclear that by what analytical instruments did the authors identifies the crystalline phases present in CaO based biocatalyst? Please also designate Y-axis by % mass on the graph (Fig.6). 11. Why the authors put Figure.7 Pie chart showing concentration of calcined sample beneath Fig.6? what is the importance of using Pie chart for this analysis? as it would not give extra interpretation from that of Fig.6, it is suggested the authors have to delete it. 12. Please explain how it was determined by FTIR that the peak at 3041 cm-1 revealed band that represent the C=O group in CO_3^{2-}. To my knowledge, the peak at 3041 cm-1 is due to OH in $Ca(OH)_2$ which is formed during adsorption of H_2O by CaO(https://doi.org/10.1016/j.jece.2018.06.027,https://doi.org/10.1016/j.renene.2018.05.048,doi:10.1088/17426596/1349/1/012051,https://doi.org/10.1016/j.rser.2015.03.048). The authors, please either make a deletion or modification 13. Providing a comparative analysis with existing catalytic systems or methods for biobased CaO biocatalyst and biodiesel synthesis could accentuate the significance of the proposed catalyst. 14. The authors have to include the results of either GC or ^{1}H-NMR spectrum of biodiesel product for confirmation 15. A lots of related research outputs are there on the studied field. However, the authors cited on limited references. It is suggested more and upto date references have to cited in the manuscript	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

Name:	**Jibril Goli Buta**
Department, University & Country	**Adama Science and Technology University, Ethiopia**