Reviewer’s report

Title: Palm Kernel Cake Extract Exerts Hepatoprotective Activity in Heat-Induced Oxidative Stress In Chicken Hepatocytes

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Reviewer: Jalal Pourahmad

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This research was performed to evaluate the hepatoprotective potential of Palm kernel cake (PKC) extract against heat-induced oxidative stress on chicken hepatocytes, the nature of the active metabolites and the possible mechanism involved were also elucidated. Their findings showed that the PKC extract has free radical scavenging activity with values significantly (p<0.05) lower than silymarin as the reference antioxidant. Heat-induced oxidative stress in chicken hepatocyte impaired the total protein and increased the lipid peroxidation and antioxidant enzymes activity significantly (p<0.05). Treatment of heat-suffered hepatocytes with PKC extract (125 µg/ml) and silymarin as positive control corrected these values significantly (p<0.05). The real time PCR and western blot analyses revealed the significant (p<0.05) up-regulation of oxidative stress biomarkers including TNF-like, IFN-# and IL-1# genes and NF-#B, COX-2, iNOS and Hsp70 proteins expression upon heat stress in chicken hepatocytes. The PKC extract and silymarin were able to alleviate the expression of all of these biomarkers in heat induced chicken hepatocytes. The gas chromatography-mass spectrometry analysis of PKC extract showed the presence of fatty acids, phenolic compounds, sugar derivatives and other organic compound such as furfural which could be responsible for the observed hepatoprotective activity. And finally the authors concluded that the PKC extract could be a potential agent to protect hepatocytes function under heat-induced oxidative stress.

1) The study design behind this research article sounds great and the methodology associated is perfect. It seems that investigating group has an ample experience with these methods. The statistical work is sound.

2) Considering the fact that nowadays because of global warming, the poultry industry suffers tremendous loss due to severe toxic effects of heat stress on liver function in chickens. Special attention is paid to find natural cost effective compounds with hepatoprotective potential. This research showed that bioactive compounds present in PKC may serve as a reliable source of hepato-protection which could help to the poultry industry to alleviate the adverse effects of heat stress on liver function in chickens challenged by heat stress. This article is therefore in the best interest if IJPR readership.

3) The only weakness is that the article was not well written and the text English needs substantial improvement and edition. I recommend the authors to ask a native English speaker to completely edit their manuscript.
and finally I recommend a favorable decision for this article acceptance after its English Edition.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests