Reviewer's report

Title: Protective action of a hexane crude extract of Pterodon emarginatus fruits against oxidative and nitrosative stress induced by acute exercise in rats

Version: 3 Date: 27 May 2005

Reviewer: Mark Miller

Reviewer's report:

General
This is an interesting study on the biochemical results of an organic (hexane) extract derived from Pterodon emarginatus fruits (HCE) during and post- acute skeletal muscle exertion.

Data provided indicated a general anti-inflammatory response to HCE administration, manifested by decreased release of creatine kinase, reduced macrophage infiltration, lipid peroxidation and reduced nitrite levels. Additionally there were specific reductions in proteins with nitrated tyrosine residues (although not all were bands were affected). These assessments were made in three organs, namely brain, liver and tibilias anterior muscle. The evaluation included an assessment of time-course as well as dosing regimens.

I think the manuscript will be improved if the data is placed in the context of trauma associated with over-exertion, leading to inflammation. Mild exercise will have an entirely different pattern.

The conclusion was that HCE provided for an antioxidant, anti-inflammatory function in acute exercise. These conclusions are consistent with the data, although there are some specific incidences needing additional clarity and alternative interpretations. Nevertheless the data does support the folklore for its role in inflammation.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

? Why place the Methods after the discussion? Why not number pages?
? It is relevant to note that nitration reactions can also be the result of nitrite and myeloperoxidase.
? Data suggests that 1 hour and 6 hours are comparable for CK activity, but the results suggest that 6 hr is maximum. Clarify.
? There appears to be a degree of cell damage with this intense exercise and it should be mentioned in the discussion, as the results are not simply exercise. Macrophage infiltration confirms the biochemistry.
? HCE did not affect BASAL macrophage density (clarify with caveat in the results)
? Improve the figure legends to explain the figures, as it stands one must go back to the text to determine the groups and sub-figures.
? Need to mention that many nitrotyrosine bands were not affected by HCA. Are the ones that are reduced related to macrophages, as histology of inflamed tissue will demonstrate most of the nitrotyrosine is linked to infiltrating cells.
? Nitrite is highly diffusible so the methods are limiting. I would have preferred to use an ex vivo
incubation in an L-Arginine rich media or buffer to get a handle on production, rather than trapped levels that may reflect edema.

? Need to discuss the oxidative and inflammatory events in liver and brain – when source of injury and performance is muscle. General comment on cell activation, infiltration etc is required. 

? Most of the oxidation and events appear to be linked to damage causing cell infiltration, this should be discussed as less stressful exercise would have a different pattern. This is simply another form of trauma. 

? Figure 4 is missing A, B in sub-figures.

Discretionary Revisions (which the author can choose to ignore)

What next?: Accept after minor essential revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests.