Reviewer's report

Title: Flavones from Erythrina falcata are modulators of fear memory.

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Reviewer: Pamela Maher

Reviewer's report:

This manuscript describes the detailed molecular characterization of the compounds in Erythrina falcata that promote memory. This is an important step forward in both understanding how E. falcata extracts promote memory and possibly in designing new therapeutics for the treatment of memory loss. However, in its present form, the manuscript is lacking in both clarity and brevity.

1. Major Compulsory Revisions: Most importantly, Figure 6 clearly shows that FBu, BuF3 and BuF4 prevented memory extinction while none of the isolated flavonoids did so. This point is reiterated in the Abstract, Results (bottom of 1st paragraph, pg 19) and Conclusion. However, in the Discussion, it is stated several times (end of 1st paragraph, top of pg 26) that FBu, BuF3 and BuF4 did not prevent memory extinction while several of the isolated flavonoids did. The authors need to ensure that their data and the discussion of the data match. Furthermore, since the isolated flavonoids do not appear to prevent memory extinction, this suggests that either another component of the butanol extracts has this activity or that it is mediated by a combination of flavonoids. This point should be addressed in the Discussion. It is also not clear exactly how the extracts were prepared and fractionated. Figure 1 does not provide any details and the description of the fractionation is not clear. Were the Bu fractions (BuF1-6) further fractionated or were the Ff fractions prepared separately? If they were prepared separately then the authors need to explain the relationship between the two sets of fractions and also what the steps were for the elution of the Ff fractions since there were 15 of those for a total of 750 ml as opposed to 6 of the BuF fractions for a total of 450 ml. In addition, the Discussion needs to be shortened significantly. The entire section on GABA receptors could be removed since there is no evidence at the present time that the memory effects seen in this study are mediated by effects on GABA receptors. In addition, the discussion of the molecular characterization of the flavonoids could be shortened since much of this is already covered in the Results. Finally, the manuscript should be edited by a native English speaker as the word usage is frequently problematic which also reduces the clarity of the manuscript.

3. Discretionary Revisions: In Figure 6, compounds that did not or only minimally promoted memory could be removed from the graphs so as to reduce clutter and improve clarity.

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.