Review of: "Damsels in a Hidden Colour: Development of Ultraviolet Sensitivity and Colour Patterns in Damselfishes (Pomacentridae)"

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Potential competing interests: No potential competing interests to declare.

This study tried to find out about Damsels in a hidden colour: development of ultraviolet sensitivity and colour patterns in Damselfishes (*pomacentridae*). This manuscript is a work of high originality. The experimental materials and methods are clear and innovative. Furthermore, the resulting fish make the results of this study able to be interpreted properly and become highly valuable. Thus, this manuscript is acceptable. The details are as follows:

1. This study uses UV photography to reconstruct the opsin gene and analyze gene expression on the retina to investigate the development of UV vision and colour patterns in coral reef fish at different developmental stages (larval, juvenile, and adult). This is an original paper.
2. The method of this study combines UV photography, phylogeny reconstruction, and differential gene expression analysis to strengthen this research. This provides a deep understanding of the spatial distribution of UV patterns in fish and also provides a large amount of analytical information for the development of UV body colour patterns in fish by comparing transcriptomics and combining gene expression with these methods. The quality of the methodology is superior.
3. This study found that the genetic expressions of juvenile and adult fish are very similar, while the genetic expression of larval fish is very different. Damselfishes can recognize colour and change the genetic sequence; in addition, during the development stage of fish, UV sensitivity and UV colour pattern will undergo drastic shifts. This paper leads to interesting results concerning the development of ultraviolet sensitivity and colour patterns.
4. The diagram shown in Figure 3 in this text is blurred on the right side. If it can be improved, it will greatly help the quality of the research.